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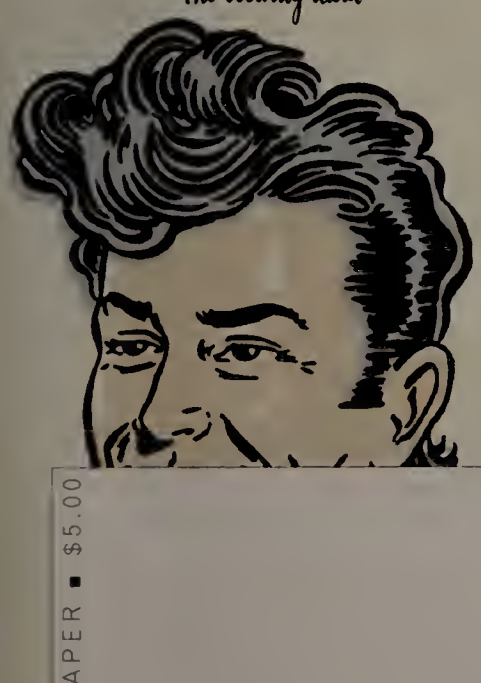
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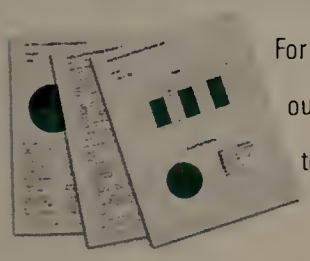


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ILLUSTRATION JOHN KACHIK

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Interactive

Buzzwords defined

After reading The Buzz Issue, our annual take on the hottest network technologies, head online to our Networking Encyclopedia for detailed definitions of the technologies and standards profiled, and dozens of others.
DocFinder: 2335

DEMOmobile 2002 Weblog

Cool Tools columnist Keith Shaw was in San Diego last week getting the scoop on the hottest wireless and mobile products around. See what's in your wireless future.
DocFinder: 2237

More with Less

Learn how to get the most out of your equipment, staff, contracts, budgets and more.
DocFinder: 2336

Seminars and Events

Convergence is a god

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DocFinder: 2341

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Microsoft's plan for reducing bugs — embarrassment
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The iPaq as a network test tool
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Columnist James Gaskin examines the UnitedLinux group's aim to consolidate efforts and drive standards.
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News

Microsoft, Cisco prepare for PEAP show

■ BY ELLEN MESSMER, JOHN FONTANA AND JOHN COX

Microsoft and Cisco this week are expected to detail how they will support an emerging IETF wireless security standard for authentication that could quash a competing standards effort.

Microsoft, Cisco and RSA Security developed Protected Extensible Authentication Protocol (PEAP) as a way to securely transport authentication data, including passwords, over 802.11 wireless networks by using tunneling between PEAP clients and an authentication server.

Like the competing standard Tunneled Transport Layer Security (TTLS), PEAP makes it possible to authenticate wireless LAN clients without requiring them to have certificates, simplifying the architecture of secure wireless LANs.

This week Cisco will detail how it will include PEAP in its wireless LAN products, which until now have supported a proprietary protocol called Lightweight Extensible Authentication Protocol (LEAP). Microsoft added PEAP support to Windows XP in a service pack released Sept. 7.

PEAP's progress casts a shadow over the TTLS effort, which also is on the IETF standards track. Funk Software and Certicom developed TTLS, predating PEAP. About three months ago, Funk deployed TTLS in its Odyssey wireless LAN authentication server and the client components for TTLS on the desktop.

"PEAP and TTLS are almost identical," says Joel Snyder, senior partner at consultancy OpusOne, a Network World Global Test Alliance partner. "It doesn't make sense to have both. It's like having two sizes of floppies."

"We don't need two standards," agrees Funk President Paul Funk, author of TTLS, who says that wireless LAN product providers Agere Systems, Proxim and Avaya are supporting Funk's work on TTLS at the IETF. Funk describes TTLS as a "superset" of PEAP.

The rivalry, some suggest, stems from both sides wanting to be considered as originators of what might become an important wireless LAN security protocol. The victors could set the course, while the losers will have to retool.

Inside look

TTLS and PEAP work within the framework of the broad-based IEEE 802.11 wireless LAN standard for authentication known as 802.1X. PEAP and TTLS each use Transport Layer Security — which is often described as a better Secure Sockets Layer — to set up an end-to-end tunnel to transfer the user's credentials, such as a password, without having to use a certificate on the client.

Together with the wired equivalent privacy (WEP) encryption standard, TTLS and PEAP authenticate end users and conceal the users' credentials.

But WEP has come under fire from a range of critics, and today there are many improved methods in the works, including WEP2 and Temporal Key Integrity Protocol (TKIP).

TTLS is better because it is flexible enough to support WEP2 and TKIP as they become available, Funk says. It could also accommodate Advanced Encryption Standard, which has been approved by the federal government as the replacement for Data Encryption Standard, and is

See PEAP, page 14

Top wireless LAN worries

Security topped the list of wireless LAN concerns among 500 *Network World* readers surveyed (more than one response allowed).

Encryption key and security management	74%
Troubleshooting, connectivity and interoperability problems	49%
Poor network performance	48%
Lack of common wireless standard	48%

SOURCE: NW 500 SURVEY 2002

Find out more results from the survey at www.nwfusion.com, DocFinder:2349

Vendors scramble to manage mixed storage nets

■ BY DENI CONNOR

A string of recent news announcements from major storage vendors highlights the industry's ongoing rush to consolidate and automate the management of heterogeneous storage devices.

Just last week:

- EMC launched a storage resource management product called Enterprise ControlCenter Automated Resource Manager (ARM) and a multivendor storage-area network package called SAN Manager.
- Veritas Software announced the next version of its SANpoint Control Version 3.5 software, which adds support for direct-attached storage and tape, and rules-creation, provisioning and reporting capabilities.
- Hewlett-Packard rolled out the next version of its Enterprise Network Storage Architecture, called ENSAextended, and a new version of its OpenView Storage Area Manager (SAM) software. SAM will now manage EMC Symmetrix, IBM Enterprise Storage Server, and Hitachi Lightning and Thunder arrays.
- Computer Associates this week will announce the next step in its Enterprise Storage Automation strategy — the BrightStor Portal — that groups its storage software together under one Web interface.

"Storage is still one of the last bastions of manual labor," says Steve Duplessie, senior analyst for Enterprise Storage Group. "Automating manual tasks is a great idea for all the obvious reasons — it gives a consistent way to do things and by eliminating boring, error-prone manual tasks, frees up IT staff to do smarter things."

The storage management market is hot, with Gartner analysts pegging it this year at $8.5 billion and increasing to more than $16 billion by 2005. The move toward automating storage management features that are now mostly manual promises to save network managers time while increasing efficiency and accuracy.

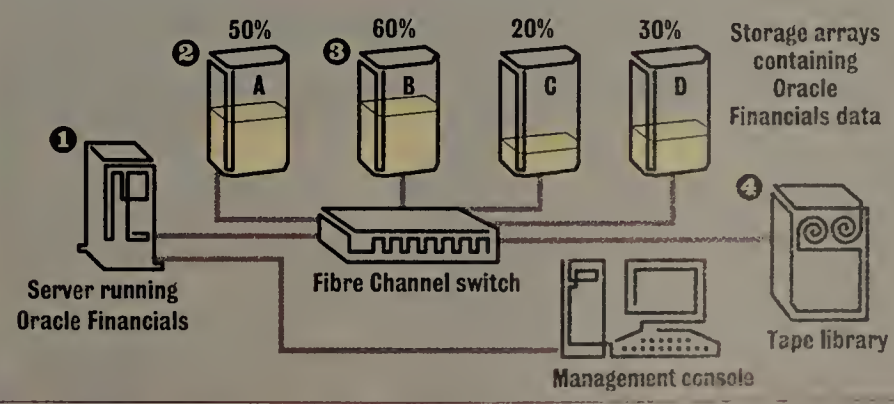
Steve Freund, group vice president for insurance company CNA in Chicago, has tested EMC's ARM with his network storage.

"When we put in our SAN, we knew we would encounter productivity issues and would need these EMC tools available to us

See Automate, page 14

Automating storage management

In this example, a company has created a rule that enforces a service-level agreement for a database application.



1. The automated resource management application runs on the server and monitors data growth on the SAN. An administrator sets a rule to continuously monitor the storage and keep volume on any disk below 80%.
2. If volume on Disk A exceeds 80%, the policy engine automatically moves data onto Drive C.
3. As the database continues to grow and the volume of Drive B increases, data will be automatically moved to Drive D.
4. Another rule says when any of the data for an account has not been accessed in two years, a hierarchical storage management application will move it automatically to a tape library.

News Bits

Microsoft patches four more flaws

■ Microsoft last week continued its string of weekly security flaws this time reporting two in Java and two in its Terminal Server software. The Java flaws are in Microsoft's Java Virtual Machine up to Version 5.0.3805. The JVM is most often found in Microsoft's Internet Explorer. The flaws allow a hacker to obtain complete control over a user's system by exploiting features for connecting to a database or for using XML in a Java application. Microsoft labeled the flaws critical and encouraged users to patch their systems. The Terminal Server flaws, deemed moderate by Microsoft, affect Windows 2000 and XP and lie in the Remote Data Protocol. The flaws allow attackers to potentially steal transmitted data or crash the operating system. To exploit the flaws, hackers need to gain a level of control over a user's actions or presence on the network. Microsoft made patches available for both vulnerabilities last week at www.microsoft.com/technet.

Slapper worm targets Apache servers

■ The so-called Slapper computer worm — subject of a CERT security advisory last week — continued its spread across the Internet by exploiting vulnerabilities in Linux Apache Web servers that have not been patched for flaws in the OpenSSL protocol described July 30 by the Open SSL Group. Once Slapper worms its way into a vulnerable Linux Apache Web server, it forces the server to join a peer-to-peer network. Hackers can use the Slapper peer-to-peer network to deliver files. According to some estimates, Slapper, thought to be the first peer-to-peer worm, has infected at least 30,000 Linux Apache Web servers.

Cisco ditches Dell as reseller

■ Cisco will drop Dell as a reseller of its network products effective Sept. 27. Dell has sold Cisco equipment through its direct online sales channel for several years. It offers all Cisco products for large companies and some for small and midsize businesses. The move might reflect Cisco's new perception of Dell as a competitor. Cisco included Dell along with traditional rivals such as Nortel and Juniper Networks on a list of competitors in a regulatory filing with the Securities and Exchange Commission dated July 27. Dell sells a growing lineup of its own network switches under the PowerConnect line. Dell referred questions about the reason for the change to Cisco.

Longtime Microsoft veteran leaving

■ Charles Simonyi, one of the original employees at Microsoft whose development efforts led to the creation of Microsoft Word, is leaving the company after 21 years to found a start-up that will develop new-era programming tools. Simonyi, who helped set Microsoft's early technical strategy, was one of four senior executives who led the company's management team during the 1980s and is the first to leave Microsoft. The others are chief software architect Bill Gates, CEO Steve Ballmer and Jeff Raikes, group vice president for productivity and business services. Simonyi is founding Intentional Software in Bellevue, Wash., with the aim of building tools that make programming easier using a combination of text, graphic images and charts.

■ TheGoodTheBadTheUgly

Taking aim at spam. MSN Hotmail users might see a decrease in spam clogging up their in-boxes in coming weeks, thanks in part to a deal struck between Microsoft and Brightmail. Microsoft said it will deploy Brightmail's Solution Suite to filter spam at the Simple Mail Transfer Protocol gateway, before it's delivered to in-boxes for Microsoft's 110 million Hotmail users worldwide.

Cache crash. Caching company InfoLibria has laid off all of its staff and closed its doors, sources say. Calls to the company, the latest caching firm to succumb to a worsening market, went unreturned. Companies such as Inktomi and CacheFlow (now Blue Coat Systems) either have scaled back or shed their caching businesses this year to focus on potentially more lucrative markets.

Will these pants cell? An ugly little debate has emerged over new pants from Levi Strauss that come with "anti-radiation" pockets for cell phones. While Levi Strauss says it is simply responding to customer demand with the new Dockers Icon S-Fit pants it hopes to start selling in Europe next year, critics say the company essentially is trying to scare the pants onto people. ➤



IDT nabs telecom bargain

■ IDT Telecom announced last week that it has acquired network assets that span 13 cities from bankrupt Star Telecommunications. The U.S. Bankruptcy Court in Wilmington, Del., selected IDT's bid and approved the purchase last week. While IDT, which offers voice and data services to residential and business users, would not specify how much the network cost, it did say it is spending less than a penny on the dollar of the original purchase price of $68 million. IDT says the purchase doubles the size of its domestic network.

Palm's new 'scentsability'

■ Palm's hardware division just moved into spanking new headquarters in Milpitas, Calif., and right away *The Wall Street Journal* has caught wind of something that smells funny — literally. A stench, described as "putrid," has been wafting over and through the new building. The cause is a dried-up 850-acre salt pond not far away. The pond is owned by Cargill Salt, which has promised to fix a broken water pump that caused the pond to dry up. It left a quantity of brine, shrimp, algae and other formerly living stuff to bake in the late summer sun.

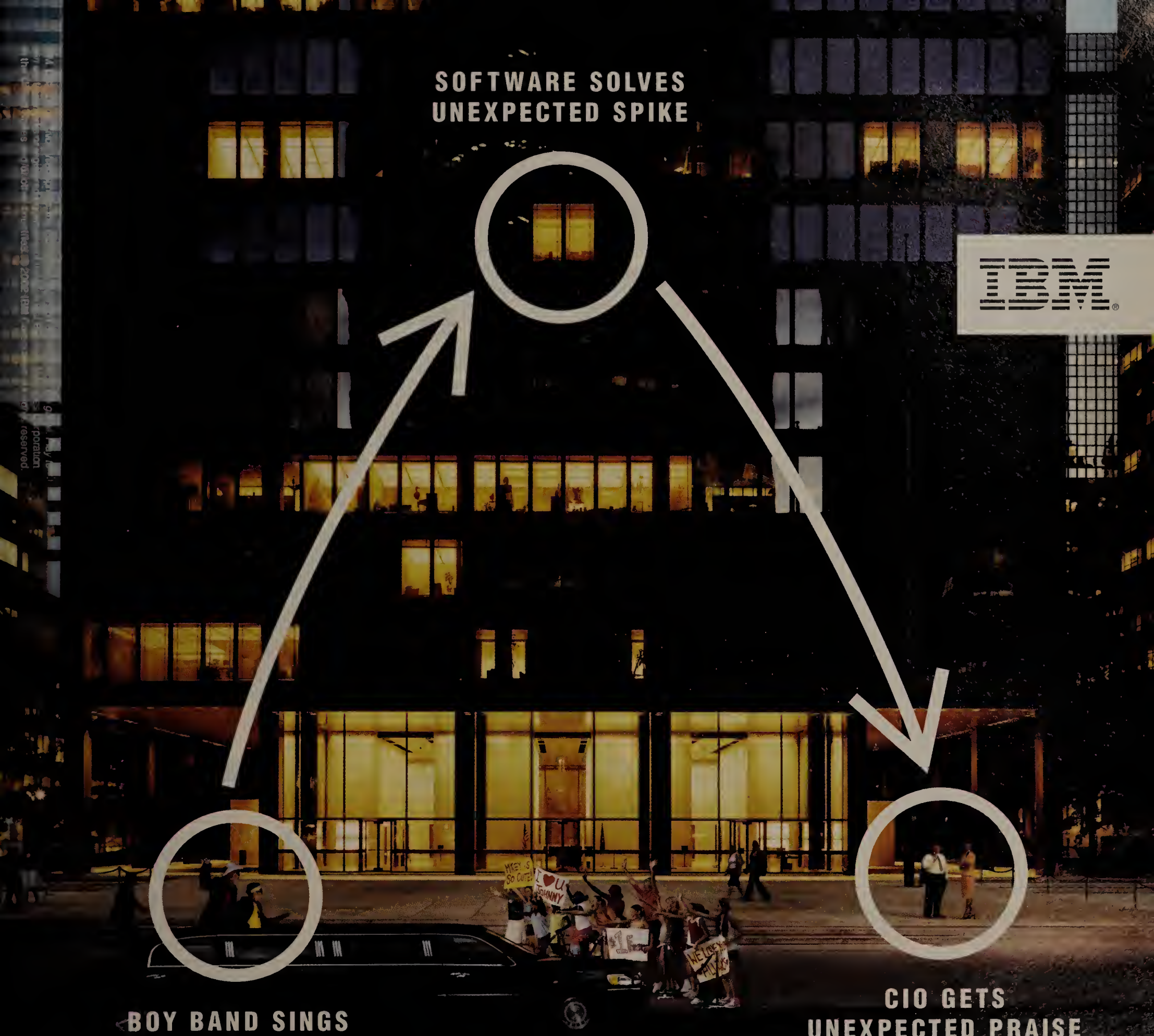
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Bush team lays out cybersecurity plan

Recommendations draw praise, but some question whether they go far enough.

■ BY CAROLYN DUFFY MARSAN AND ELLEN MESSMER

PALO ALTO — The Bush administration's cybersecurity plan paints a chilling picture of the threats facing U.S. corporations and offers a series of recommendations for network executives about how best to combat the threats.

"The National Strategy To Secure Cyberspace" was released last week at an event at Stanford University attended by 600 government and industry officials. Among the speakers were Richard Clarke, chairman of the president's Critical Information Protection Board; Robert Mueller, director of the FBI; Matt DeZee, CIO for the state of South Carolina; and Rhonda MacLean, director of corporate information security at Bank of America.

The 60-page strategy originally was intended to be a final report that summed up 10 months of study by the Critical Information Protection Board. But days before the plan's release, the White House changed its mind and released the strategy as a draft document with a 60-day public comment period before the strategy is finalized. The National Infrastructure Advisory Council, which includes the CEOs of leading high-tech companies and government officials, will review the draft and comments.

As expected, the strategy recommends voluntary efforts by industry to beef up IT security rather than new government regulations. According to the strategy, 85% of the nation's critical infrastructure facilities are privately owned and operated, and that's why the strategy favors market-based incentives.

"The government cannot dictate, the government cannot mandate, the government cannot regulate cybersecurity," Clarke said at the strategy's unveiling. "The government alone cannot make cyberspace secure."

Cybersecurity recommendations

A draft of the government's report calls for more involvement at the CEO and board of directors levels.

1. CEOs should consider forming security councils to integrate cybersecurity, privacy, physical security and operational considerations.
2. Boards should consider forming committees on IT security and should ensure that the CEO regularly reviews recommendations of the chief information security official.
3. IT continuity plans should be regularly reviewed and exercised, and should consider site and staff alternatives. Consideration should be given to diversity in IT service providers.
4. Corporations should consider active involvement in industrywide programs to develop IT security best practices.
5. Companies should review mainframe security software and procedures, and consider developing a partnership to review and update best practices.

SOURCE THE NATIONAL STRATEGY TO SECURE CYBERSPACE

Met with criticism

The plan was met with criticism because administration officials removed tougher language from earlier drafts that placed more responsibility for Internet security on ISPs and software vendors. And some security experts predicted that the strategy would end up gathering dust because it relies on recommendations rather than mandating action by industry.

However, many network vendors commended the strategy and vowed to contribute comments in the weeks ahead.

"We've stepped up the cooperation between industry and government," says Douglas Sabo, director of government relations at Network Associates. "This is the real beginning of the dialogue."

The strategy's idea of a network operations center supported by industry for information sharing on security threats is "intriguing," says Symantec's CTO Rob Clyde, but he wasn't clear how this would be accomplished.

Citing damage caused by the Nimda and Code Red viruses, the strategy outlines the growing sophistication and destructiveness of cyberattacks. The strategy says the number of attacks reported by Carnegie Mellon University's CERT Coordination Center grew nearly 30-fold in the last four years. CERT reported 3,700 attacks in 1998 and at current rates will report more than 110,000 in 2002, the plan says.

Meanwhile, computer systems and networks are becoming more vulnerable to cyberattacks because of problems with software and hardware that permit unauthorized entry or damage to a network. The number of computer security vulnerabilities that CERT identified more than doubled last year from 1,090 in 2000 to 2,437 in 2001.

The strategy recommends companies take proactive steps to improve the security of their computer systems and networks rather than wait to respond to particular threats. Among the recommendations are regular security audits, virus updates and software patches.

"The worst case [of a cyberattack] has not happened yet," Clarke said. "It's up to all of us in partnership to make sure that the worst case doesn't happen."

The strategy highlights certain kinds of systems that are most vulnerable to attack. These include the digital control systems (DCS) and supervisory control and data acquisition (SCADA) systems that the energy, chemical and other manufacturing industries use. The report recommends that companies examine Internet connections to DCS and SCADA systems and implement secure authentication within 24 months.

Similarly, the strategy identifies new risks and vulnerabilities for mainframes that are connected to the Internet. The strategy recommends increasing the frequency and rigor of audits and improving security policies for mainframes.

Another area of risk is instant-messaging programs, which often bypass firewalls and antivirus scanners. The strategy recommends that companies adjust their computer security policies to address the risks presented by these programs.

The cybersecurity strategy will encourage companies to move "to stronger authentication like [public-key infrastructure] and smart cards," predicts Barry Leffew, vice president of public sector at VeriSign. "Password authentication is not enough to control who has access to information."

Leffew says the strategy also encourages companies to monitor their networks more actively for hacker attacks and create plans for responding to those attacks. "Companies need to have proactive security assessments to identify vulnerabilities," he says.

"We'll see an increased use of managed security services for firewalls and network intrusion detection," he adds.

The National Strategy to Secure Cyberspace can be viewed at www.securecyberspace.gov. Comments are due Nov. 18. ■

Sprint offering enhanced mgmt. for data customers

■ BY DENISE PAPPALARDO

OVERLAND PARK, KAN. — Sprint is enhancing its managed frame relay and ATM services with monitoring support from Visual Networks.

The carrier announced last week that customers of its Managed Channel Service Unit/Data Service Unit service can now monitor network performance more closely and verify their service-level agreements (SLA).

While Sprint has used Visual Networks' DSU/CSUs, the carrier had not turned on the WAN performance management features for its managed customers until now, says Mickey O'Dell, director of Sprint managed services.

The management software includes capacity planning and diagnostic tools so users can keep better track of their network needs and uptime. Customers also can more easily monitor their SLAs, including network availability, packet loss and throughput. Sprint users can access these metrics stored on the carrier's network using a Web browser.

"Performance monitoring is something managed service customers expect their service provider to offer," says David Willis, senior research analyst at Meta Group. Sprint now is offering more of the enhancements managed users require, he says.

Customers can generate reports on their own or Sprint will provide reports.

While Sprint would not offer specific pricing, O'Dell says that managed service customers could expect to pay 30% to 40% more on top of their monthly management fees. There also is an installation fee, which Sprint would not reveal.

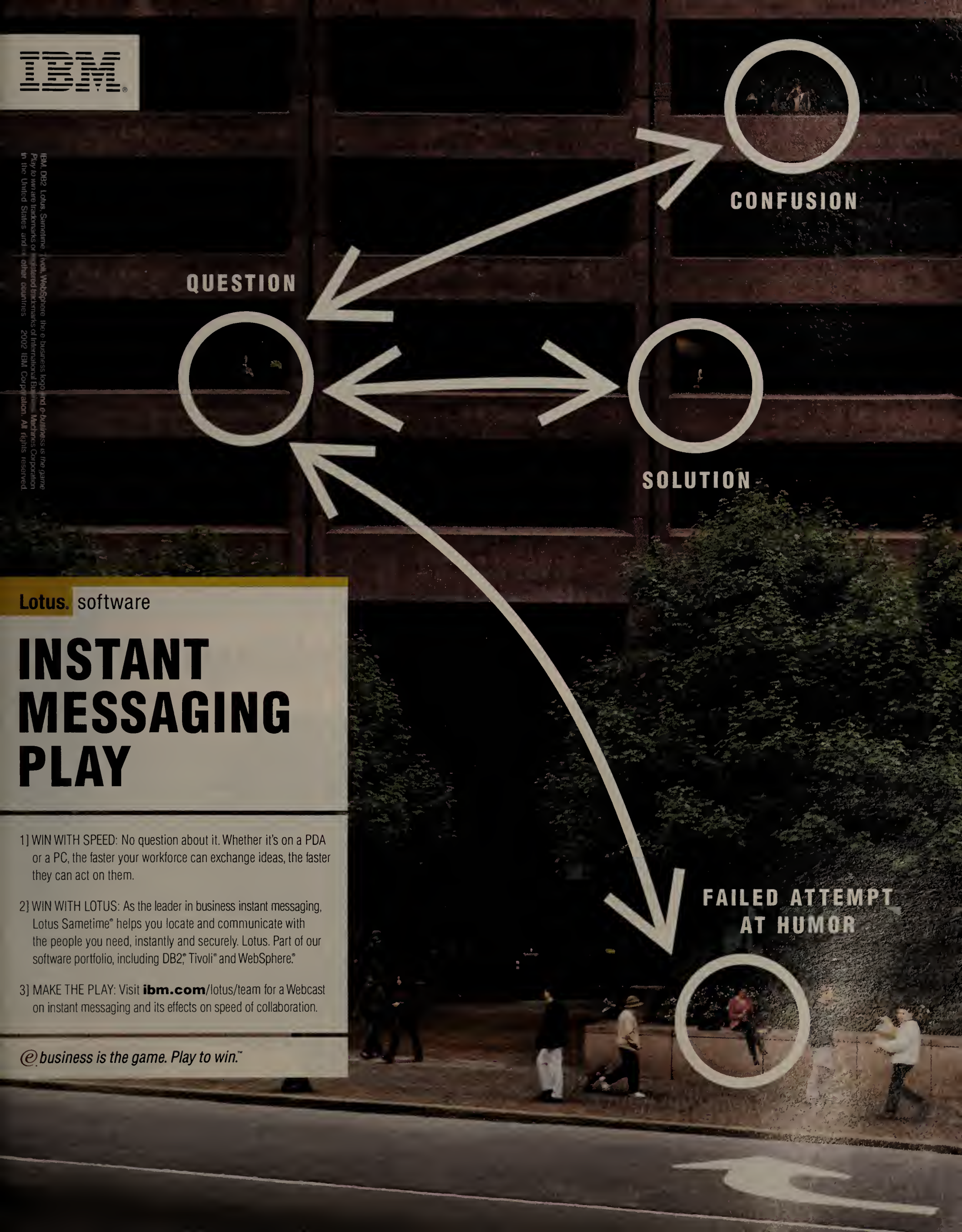
Willis says users should negotiate lower-than-list-price fees for this add-on feature. "Sprint has been very flexible on pricing ... so users shouldn't put too much stock in list prices when negotiating new contract terms as they upgrade services," he says.

The management enhancement is available now.

The company is planning a series of additional service enhancements for its managed customers that it will announce over the next few months.

Sprint: www.sprint.com

■ Columnist Mark Gibbs wants the government to stay out of the cybersecurity business. PAGE 98.



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Vendors offer gear to harden VoIP

Foundry, Mitel form partnership to help balance IP telephony traffic loads.

■ BY PHIL HOCHMUTH

Several vendors last week took aim at perceived security and reliability issues involved with running voice over IP.

Foundry Networks and Mitel say they will jointly sell a package that includes Mitel IP PBXs and Foundry switches that can be used to balance IP telephony traffic loads and protect the PBXs from hackers. Separately, VoIP firewall vendor Jasomi Networks introduced a box designed to ensure that IP phones work even in the presence of firewalls that use network address translation (NAT).

Mitel and Foundry will offer a cluster of up to 32 Mitel 3300 Integrated Communications Platform (ICP) IP PBXs in conjunction with two Foundry ServerIron Layer 4 to Layer 7 switches. This will give customers redundancy and failover for their IP PBXs, ensuring that internal IP calls and IP-to-public-switched-telephone-network calls go through.

Foundry's ServerIron boxes also include software that can identify denial-of-service attacks aimed at shutting down an IP PBX. The switch also can be configured not to accept fragmented packets or incomplete TCP/IP handshake signals, which can be signs of a malicious user attempting to flood a server with packets.

"Certainly, denial-of-service attacks are a legit threat if you have an IP PBX sitting on your network," says Mike Hommer, lab manager with Miercom, an IP voice and data equipment testing and consulting firm. "With IP telephony, you're just as subject to anything that makes an IP server vulnerable, including [DoS attacks]."

Foundry and Mitel gear is installed at the Greater London Authority (GLA), the governing body of London. More than 700 users are connected to a cluster of three 3300 ICPs over a network of Foundry FastIron and BigIron Layer 2 and Layer 3 switches. Load balancing that IP PBX cluster with a Web switch is something the GLA might look into, says Keith Beddard, network architect for the GLA.

Beddard says he has researched the FastIron switch and has considered using it as a load-balancing device for the GLA's Web servers. He says he has not mixed load-balancing technology with IP telephony before.

"For sites with large amounts of IP telephony traffic, using a ServerIron to load balance [IP PBXs] would be ideal," he says.

The Foundry/Mitel product bundle will be available in the fourth quarter. Pricing has not been set. But separately, the Mitel 3300 ICP costs about $700 per user, and Foundry's ServerIron starts at about $10,000.

Getting around NAT

Jasomi's PeerPoint Centrex product is for use with IP phones and gateways that work with Session Initiation Protocol (SIP). The box has been designed to solve problems created when SIP phone users are located behind a firewall that uses NAT, which translates IP traffic from a private IP address scheme to a public one for transport over the Internet.

Jasomi says the NAT process can corrupt SIP-based calls given that SIP cannot handle the swapping of IP addresses. Outgoing SIP traffic never reaches its destination because of the address change, the company says, and incoming SIP call traffic can be denied by the NAT firewall in the process.

PeerPoint Centrex, which can support up to 1,000 concurrent SIP sessions, can be deployed in front of an IP PBX. The Jasomi device can identify incoming SIP traffic that would normally get bounced by the corporate firewall and deliver it to the VoIP equipment sitting behind the PeerPoint Centrex box.

For outgoing SIP traffic, the PeerPoint Centrex device can learn the translation schemes of the NAT firewalls it is communicating with on the user end, and format the SIP traffic so that it can be accepted by the outside caller. Jasomi says this feature does not require extra hardware or software on the user's end.

PeerPoint Centrex will be available next month starting at $16,000. ■

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N+I Atlanta, several Comdex shows biting the dust

■ BY PHIL HOCHMUTH

ATLANTA — Key3Media Group is scrapping the NetWorld+Interop conference in Atlanta next year as part of a broader pullback in its North American IT trade show lineup. The company says financial troubles on the part of exhibitors is to blame.

Along with N+I Atlanta, Comdex in Chicago, Vancouver and Montreal, and Seybold Seminars in New York also will be canceled next year.

The demise of these long-time Key3Media events reflects travel cutbacks among businesses and the reallocation of marketing dollars by technology vendors away from trade shows, observers say. Key3Media has seen vendor and show attendee numbers decrease at many of its technology events, including its flagship N+I conference held in Las Vegas in May.



NetWorld+Interop in Atlanta was once a busy show full of exhibitors, novelty acts and tchotchkes, as seen in these 1999 photographs. But Key3Media is closing down the show in light of the industry slowdown.

"In the market we're living in, all of our clients are going though huge economic issues," says Fred Rosen, chairman and CEO of Key3Media. "They've only got so much money" and less of it is being spent on trade shows.

"We've seen these shows decline ... in the amount of square footage and in the amount of marketing we sell," Rosen says of those shows that were canceled.

In the case of the biannual N+I, Rosen adds, "Our clients are telling us that they don't want to support two shows every year."

Although Key3Media says it has not tallied final attendance numbers for N+I Atlanta, which ran Sept. 9 to 12, the company says it expects attendance at the show to be off about 40% from the 2000 peak attendance of 50,000.

"The quality of the [N+I Atlanta] hadn't changed at all in recent years," says Craig Mathias, a principal at network consulting firm FarPoint Group, who has attended and led sessions at N+I Atlanta for the past five years. He says the dwindling numbers in Atlanta this year were a real warning sign. "There were not as many sessions, and the show wasn't as big as in years past, but the level of discussion at the show has always been very high."

With Las Vegas now the only N+I show in the U.S., Mathias says network professionals on the East Coast will lose out as travel budgets shrink.

"It's unfortunate in that some people will have less access to the kind of information you can get only at a conference like [N+I]," he says. "In cyberspace, you can't strike up a conversation with someone sitting next to you that leads to new friendship. It's all about human interaction."

Key3Media's major North American trade shows for 2003 will include Comdex Fall Las Vegas and Comdex Canada, N+I in Toronto and Las Vegas, and Seybold Seminars in San Francisco.

The company says it also will keep its smaller shows, such as BioSecurity, Voice on the Net, Opticon, Next Generation Networks and Java One. ■



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PEAP

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viewed as suitable for use with wireless LANs. Funk says PEAP doesn't have this flexibility.

But with PEAP, Cisco gets what observers say is a better protocol than LEAP. And Cisco can count on Microsoft and others to get PEAP client code into laptops, handhelds and phones.

"Microsoft is organizing to be a serious player in wireless LAN access services with PEAP," says Jeff Recor, consultant at the Olympus Security Group, which partners with Cisco on security in wireless LANs. "Logically, Microsoft has the client and Cisco has the back end."

Microsoft has acknowledged that it intends to include PEAP as part of the Internet Authentication Service in the Windows.Net Server by year-end. And Microsoft plans to add PEAP to Windows 2000 for servers and desktops.

Recor says he can imagine PEAP going into Microsoft Active Directory, too. As a Cisco technical partner, he says he fully expects Cisco will add PEAP to the Cisco authentication server and its wireless access point but not phase out LEAP right away.

Corporations deploying wireless LANs are trying to get a handle on PEAP, which Cisco and Microsoft started discussing earlier this year.

One drawback is that Windows XP is currently the only operating system that supports PEAP, says Thomas Gaylord, vice president of IS at the University of Akron in Ohio, a Cisco wireless customer.

The university uses the Cisco Secure Access Control Server, a RADIUS server and VPN software running on each wireless client.

Some IT managers say they find little reason to rush into PEAP, and want to see it be further accepted in the standards process. "It's just a proposed standard," says Van Nguyen, director of global IT security at global shipping firm APL, which is organizing its wireless LAN security strategy for deploying wireless LANs in APL's warehouses. At this point, Nguyen is leaning away from 802.1X and toward a roamable VPN based on the ReefEdge appliance that provides VPN, firewall and authentication on wireless LANs.

Many Cisco customers say they haven't heard much about PEAP, but they hope it will bring some ability to break loose of Cisco's proprietary authentication protocol, LEAP.

Wireless LAN security glossary

802.1X	IEEE 802.11 standard for authentication, which supports multiple authentication modes, including RADIUS, that can be used in wireless and wireline networks.
802.11i	IEEE standards group effort that involves "fixing" perceived weakness in 802.1X and WEP (see below).
LEAP	Lightweight Extensible Authentication Protocol, which includes Cisco's proprietary extensions to 802.1X to share authentication data between Cisco Aironet wireless LAN access points and the Cisco Secure Access Control Server.
PEAP	Protected Extensible Authentication Protocol, which was developed by Microsoft, Cisco and RSA Security, is now an IETF draft standard. PEAP encrypts authentication data using a tunneling method.
TKIP	Temporal Key Integrity Protocol, which was developed by the IEEE 802.11i standards committee as a WEP improvement.
TTLS	Tunneled Transport Layer Security, which was developed by Funk Software and Certicom, now is an IETF draft standard. It is an alternative to PEAP.
WEP	Wired Equivalent Privacy, a wireless encryption standard, which was developed by the IEEE 802.11 standards committee.

"Use of LEAP has locked us into using only network interface cards made by Cisco," says Mark Wiesenberg, director of strategic architectures at Sharp HealthCare, a network of hospitals and clinics in San Diego. "This has seriously hampered our ability to move to new devices with built-in cards that don't have the ability to speak LEAP. This is particularly troublesome with handhelds and tablet devices."

With heavyweights Microsoft and Cisco backing PEAP, wireless LAN security vendors that have implemented TTLS are wondering what to do next.

"We're going to have to support both TTLS and PEAP," says Paul Goransson, president of Meetinghouse Communications, which competes with Funk in providing wireless LAN authentication servers and client software.

IBM, which resells Cisco's wireless LAN products, would prefer to support industry standards, whether PEAP or any other. "LEAP was the only thing available when Cisco's wireless LANs came out with a preindustry version of 802.1X," says Howard Dulany, market segment manager for wireless products in IBM's personal computer group.

It's important to straighten out the security issues related to wireless LANs because "the No. 1 inhibitor of wireless LAN deployment is security," Dulany says. ■

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Automate

continued from page 7

to help improve the productivity of our storage administrators," Freund says.

The insurance company's SAN contains EMC Symmetrix arrays, 1,500 Fibre Channel ports and 60 terabytes of data.

"These tools help us to be more responsive in provisioning storage to meet application requirements," Freund says.

Provisioning storage isn't a simple task. It can take as many as 42 steps to add additional space to a high-end storage array, observers say.

James Barry, CIO for the Boston Bank of Commerce, uses the BrightStor Portal and will look at CA's storage automation products.

"Our business plan is focused on growth through acquisition, so I have an ever-growing complexity in my [storage] environment," Barry says. "In bringing that new data in, having the ability to dynamically allocate or manage storage saves me plenty of time."

"Our storage consists of a ton of data in different places being managed by different [storage tools]," Barry says, adding that he has about 250G bytes of direct-attached Dell storage in multiple locations.

"With the BrightStor portal we are able to view all our data and the large variety of storage software we use from a single interface," he says.

Barry says that with automation tools he would be able to create rules that would dynamically archive his storage to DVD.

The automated provisioning of storage is just gathering steam, largely because of the difficulty vendors are having retrofitting existing software or writing new software to address the need.

Although the storage automation market is still small — only $50 million in 2002 according to The Yankee Group — as vendors start shipping products, it will grow into a $500 million market by 2005.

Automated rules-based provisioning

This table shows a sampling of companies that have or have promised some level of automated, rules-based storage provisioning for other vendors' storage arrays.

	HPxp Series	HP StorageWorks	EMC Symmetrix	EMC Clariion	IBM Enterprise Storage Server	Hitachi Lightning 9900	Sun T3
BMC	Q2 2003	Q2 2003	12/02	Q2 2003	2003	12/02	2003
CA	Before 3/03	Uncertain	Before 3/03	Before 3/03	Before 3/03	Before 12/02	Uncertain
EMC	Now						
HP	11/02	11/02	11/02	12/02	11/02	11/02	No plans
Sun	Now						

There is so much interest in reducing manual storage tasks that a number of small companies are getting involved. InterSAN, Creekpath and Fujitsu Softek are shipping products that automate the provisioning of storage. Start-ups Invio, AppIQ and StorScape, while in stealth mode, are doing automated provisioning.

Analyst Duplessie says that storage automation consists of four elements: the ability to discover, monitor and group assets; a rule-based engine to enforce service-level agreements; the ability to take action based on triggers; and the capability to automatically provision storage.

"EMC clearly has the leg up on practical and usable tools for storage management," Duplessie says. "BMC Software, on the other hand, while having an early lead in application integration, has fallen behind in provisioning and automation."

Jamie Gruener, a senior analyst for The Yankee Group, says the need for automation will spur changes in the way customers deploy storage.

"To a certain extent these vendors have to make storage so automated [that] there is no need for a [vendor's] engineer to come in and set up storage," Gruener says.

A number of large storage companies are promising more automated storage software.

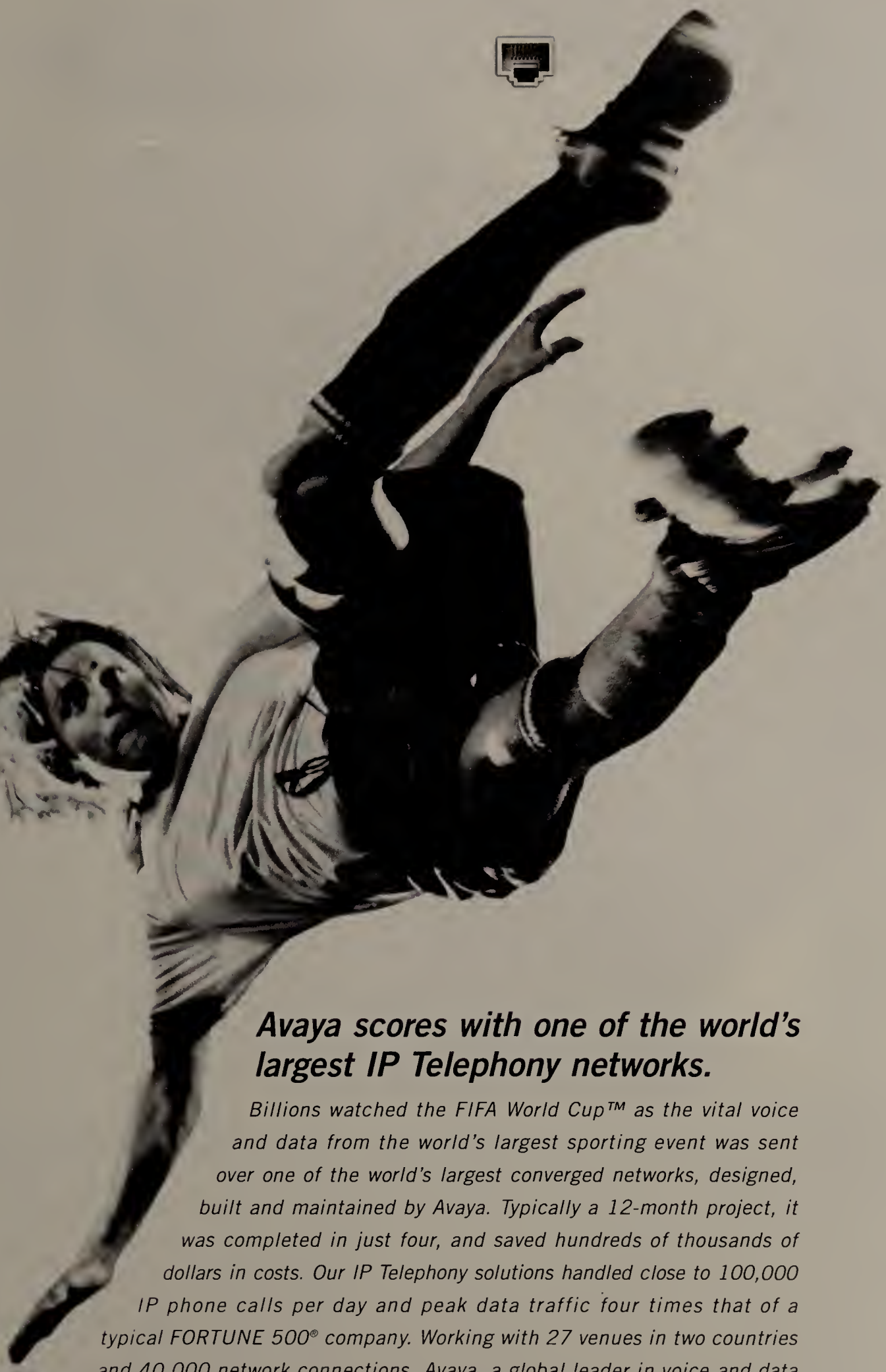
CA says it will provide automated provisioning of multivendor storage within the next six months.

BMC will announce tools for provisioning and automated storage management to its Application-Centric Storage Management initiative, which associates specific applications with physical and logical storage assets.

HP says its storage software division will within two months introduce OpenView Storage Provisioner, its automated storage allocation software, and management support for EMC Clariion arrays. ■

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COMMUNICATION WITHOUT BOUNDARIES

Amdocs upgrades Clarify suite

CRM upgrade adds integration, process management tools.

■ BY ANN BEDNARZ

SAN JOSE — Amdocs, owner of the Clarify software line, this week is announcing its first upgrade of the once-pioneering CRM suite.

ClarifyCRM 11 will include a new integration gateway, process manager and support for thin clients, aimed at making it easier for companies to deploy Clarify software and link it to their other systems, Amdocs says.



Read our Q&A with Dror Pockard online. DocFinder: 2342 www.nwfusion.com

"Clients want to pick and choose where it makes sense to switch to thin clients and don't want to do heavy implementation where it's not required."

Dror Pockard
President, Amdocs' Clarify division

Clarify was an early leader in the CRM market, but faded from view during the period it was owned by Nortel. When Nortel announced plans to buy Clarify for $2.1 billion in October 1999, Clarify was No. 2 in market share behind Siebel Systems. Today it's No. 11, according to AMR Research.

Amdocs, which bought Clarify for $200 million in November 2001, wants to regain some of that lost market share.

"We have our eye on No. 1," says Dror Pockard, Amdocs' Clarify division president.

Amdocs also makes billing and order management software, primarily for telecom companies. The company has incorporated some of its analytic tools and order management features in the new Clarify suite, Pockard says.

Version 11 features a new architecture that includes browser-based access. Thin-client support is not uncommon — CRM rival PeopleSoft introduced a Web-based architecture with PeopleSoft 8, as did Siebel Systems with Siebel 7.

Amdocs stresses that Version 11 lets browser-based and client/server applications coexist. Companies can manage thin and thick clients through the same database, which lets them stagger upgrades, Pockard says. For example, a company might want its salesforce to migrate to thin clients, while keeping its local call center employees on a client/server setup.

"Clients want to pick and choose where it makes sense to switch to thin clients and don't want to do heavy implementation where it's not required," Pockard says.

Cogent Communications, a systems integration division of EADS Telecom, will support thin and thick clients internally and for its customers. At Cogent customer U.K. Ministry of Defence, high-security communications personnel will retain client/server applications, while 15,000 others get the new browser-based applications.

Also new in ClarifyCRM 11 is Process Manager, for defining, managing and automating business processes. This module is built on workflow capabilities that Amdocs developed in cooperation with customer British Telecom. "We believe that's the way to approach development — with a leading customer," Pockard says.

Process management is a fairly new idea for a lot of CRM vendors, so Amdocs is on par with its competition, says David Hawley, an analyst in The Yankee Group's telecom software strategies group.

"Users have struggled with the gaps between sales, marketing and service," Hawley says. "Products like Process Manager allow companies to move out of those stovepipe processes. It's not an all-encompassing solution, but it's steps in the right direction."

Jean-Noel Ribeyrol, director of technology systems at French telephone company Spie Communications, says he envisions that Spie could use Process Manager to automate certain paper processes and ensure that service employees follow protocol when creating and resolving support cases.

"It could be interesting for us to use this new module if it interacts well with other Clarify applications," Ribeyrol says.

Amdocs also focused its upgrade efforts on an integration gateway for ClarifyCRM that provides XML-based links for exchanging data among Clarify software and other systems. The new Billing Manager module provides prebuilt integration between ClarifyCRM and Amdocs' billing software.

Amdocs plans to create a packaged integration tool for linking Clarify with order management software. A voice portal also is in the works, Pockard says.

Such advances resonate with customers such as Cogent.

"Our view internally is that there is more focus on product development and addressing customer/user requirements than there was previously," says Andrew Baldwin, eBusiness manager at Cogent. "The pace and quality of the developments also seems to be improving." ■

Epicentric out to make portals more personal

■ BY JENNIFER MEARS

SAN FRANCISCO — Epicentric next week will release updated portal software to make it easier for users to personalize pages with the content and applications they need to do their jobs.

With Foundation Server 4.1, which will be available Sept. 30, Epicentric is continuing its efforts to let users manipulate information and services within the Java-based portal, while reducing the strain on IT.

Features include:

- Rules-Based Content Personalization, which provides a point-and-click wizard for users to define what content should be pushed to a portal depending on a user's role within the organization. This was available in earlier releases, but required developers to set up the business rules.
- My Pages, which lets users create portal pages from the ground up by aggregating the services and content they use most. Analysts say Epicentric stands out in the portal market because of its ability to centrally manage multiple portal deployments, and with My Pages, users can bring the personalized pages with them as they move among departmental portals.
- Web Services Manager, which lets users integrate Web services into a portal.

The updates bring Epicentric up-to-speed with competitors such as Plumtree, IBM and BEA Systems in areas such as portal personalization, analysts say. Other features boost Epicentric's position.

"They have strengths in managing multiple portals," says Ray Valdes, research director at Gartner. "The My Pages feature builds on that strength and moves them ahead a little bit."

Janet Beyers, director of business-to-employee services at Hewlett-Packard, which uses Epicentric for a portal that serves all of its 150,000 employees, says she is looking forward to enhancing the personalization features within the portal.

"Users say they want the capability to pick and choose and aggregate their favorite activities . . . but they also want content pushed to them," she says. "[Updates to Foundation Server] will make that even easier to do in the future."

Version 4.1 costs $75,000 per CPU and runs on Windows NT and 2000, Solaris, Red Hat Linux, HP-UX, and AIX. ■

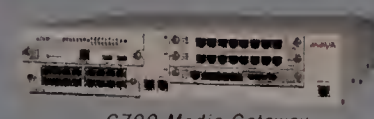
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COMMUNICATION WITHOUT BOUNDARIES

Sun details N1, Linux desktop initiatives at show

■ BY LINDA LEUNG

SAN FRANCISCO — As expected, Sun formally unveiled its N1 initiative at its SunNetwork conference last week and also used the show to detail plans to offer Linux-based desktop computers.

Sun described N1 as its "vision for the next-generation data center." The idea is to enable corporations to pool servers (Unix-, Linux- or Windows-based), storage devices and network gear and then configure these resources on the fly to serve specific business functions.

"Customers say 70% of their IT budgets are spent on managing the complexity in their data center," says Steve McKay, vice president of N1 at Sun. "N1 is focused on reducing that number and allowing companies to do more with less." He declined to estimate what kind of returns N1 might deliver.

The first N1 products under Phase 1 of the program are expected to be rolled out at the end of this year and will be aimed at virtualizing storage, systems and network equipment. Sun moved to bolster its storage virtualization offerings with the acquisition earlier this month of start-up Pirus Networks. Pirus makes a storage switch that promises to help businesses consolidate mixed storage devices and servers under a single management interface.

Phase two of N1 will encompass service provisioning that will map services, such as Web services or e-mail, to specific network resources. A provisioning engine is scheduled to be released in mid-2003 that will let administrators specify the business service definition for a service and provision the resources required from the virtual pool.

The final phase is expected to bring with it delivery in 2004 of dynamic policy management products, including a rules-based policy management engine. Ultimately N1 architectures will be able to learn the behavior of resources and dynamically update those as services and policies are modified.

Some users are skeptical of the virtualization promise. Joshua Gould, systems manager for the Computer and Information Sciences group at The Ohio State University in Columbus, which has 30 Sun workgroup servers, says initiatives "like this are always marketed to 'simplify' managing large groups of servers. With Magic Product X, you'll be able to handle the same numbers of servers with fewer people." Although, he says he has doubts about N1 working in practice.

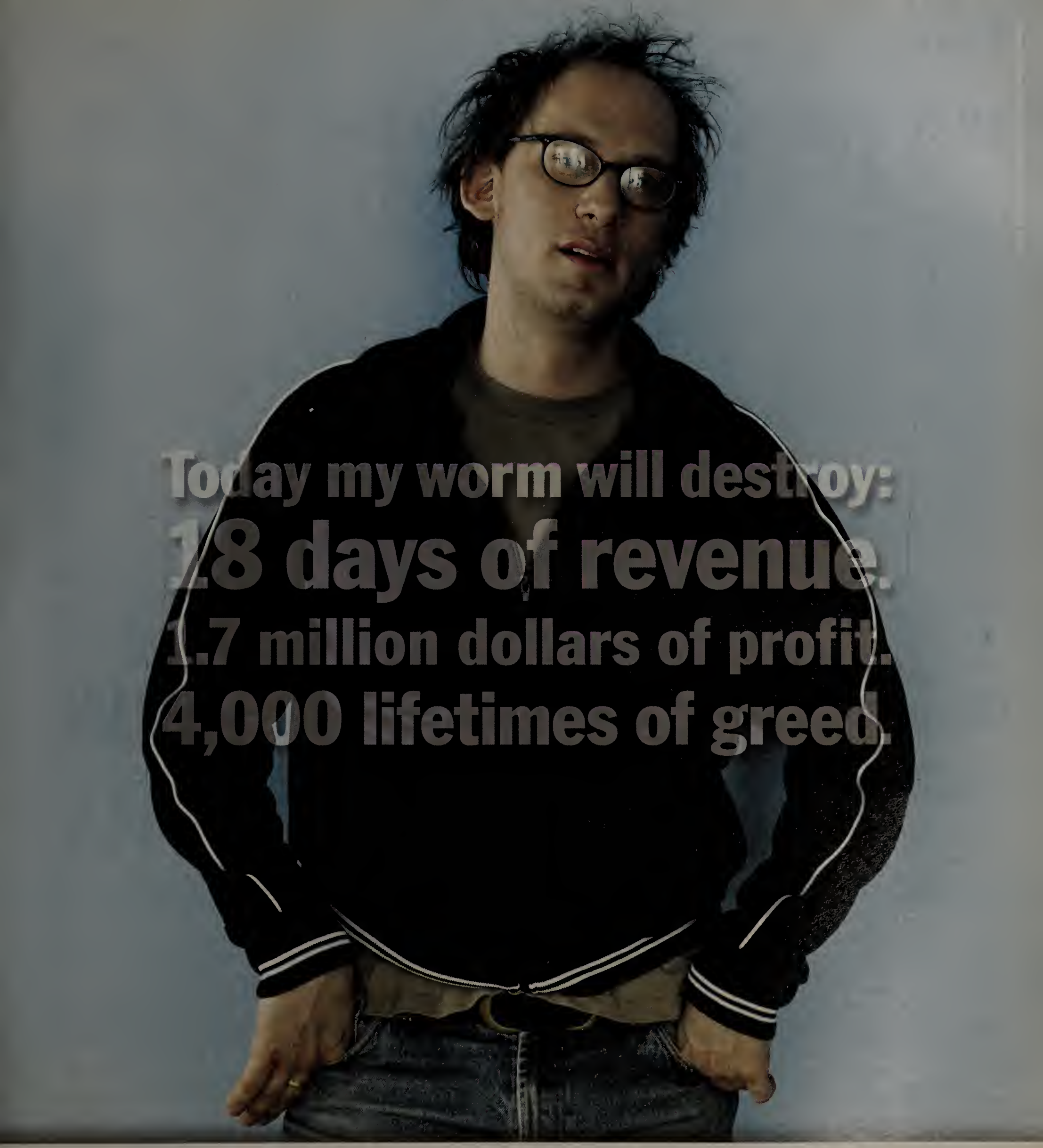
At the show, Sun also said it plans to deliver X86-based Linux desktops for use in call centers, retail outlets and classrooms where a fully fledged PC isn't required. The products are due out next year and will run open source programs such as the Mozilla Web browser, the OpenOffice productivity suite and Evolution, an open source e-mail program.

A typical customer package will include 100 PCs and a small server running Sun's portal and identity server software, the company says. The systems, on average, will cost $49 per month, per user, compared with about $170 per user, per month, for a typical Windows PC.

Sun also made several security announcements, including the contribution of its Elliptic Curve Cryptographic public-key system for mobile/wireless environments to the OpenSSL Project. ■







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HP, Sun add flexibility to server lines

New Proliant server among HP offerings; Sun addresses workload management.

■ BY JOHN FONTANA

In an effort to meet corporate demand for server environments that can adapt to changing network loads, Hewlett-Packard last week added depth to its ProLiant line while Sun added a module for workload management of its Sun Fire products.

HP introduced a new ProLiant server and enhanced two others in its ML300 line for small and midsize businesses running enterprise-class applications. All are designed around HP's adaptive infrastructure architecture that lets network executives tweak servers on the fly.

HP's newest server is the ML-310, which uses a single Intel Pentium 4 processor and comes with AT Attachment RAID. Users have an option to add SmartArray SCSI RAID controllers and HP tape back-up devices.

HP also enhanced the ML350, a two-way server with an expandable 5U (8.75-inch) rack or tower platform. The server supports Intel's Xeon 2.0 and 2.2-GHz processors. The platform's four 64-bit expansion slots have been upgraded to 100MHz with PCI-X from the original 33MHz. The maximum amount of supported RAM has been doubled to 8G bytes.

These improvements are "all about reliability," says Eric Schooley, network administrator for Wyoming State Parks and Cultural Resources. "What I have is a known quantity that fits perfectly in my seven remote offices."

Schooley says he uses the servers primarily to host NetWare file and print services.

The ML370 is a two-way rack or tower expansion server that supports up to two Intel Xeon 2.4-GHz processors with hyperthreading, and up to 12G-bytes of Double Data Rate memory. HP has added its Integrated Lights-Out technology for remote management as a standard feature.

All three servers support Windows and Linux. The ML310 starts at $1,200, the ML350 starts at $1,850 (tower) and $2,100 (rack), and the ML370 starts at $2,709 (tower) and $3,009 (rack).

Meanwhile, Sun released a workload management module called

"What I have is a known quantity that fits perfectly in my seven remote offices."

Eric Schooley
Network administrator, Wyoming State Parks and Cultural Resources

In addition to the server improvements, HP last week also released its ProLiant Essentials Workload Management Pack 2.0. The software lets users define processor and memory resources for specific applications so the applications don't collide with each other when run on a single consolidated server.

Web-based Enterprise Management Dynamic Reconfiguration that allows administrators to automatically allocate resources, such as CPU and memory, on their Sun Fire servers to coincide with varying user demand for server-based applications. The module works with the entry-level, eight-processor 3800 all the way up to the 106-processor 15K.

The module plugs into BMC Software's Patrol software for workload monitoring and is based on the Web-based Enterprise Management standard.

"The moving of resources has been a manual process to maintain consistent server levels," says Ken Won, director of enterprise server marketing for Sun. "This sort of technology is in the mainframe world, and we are pushing to bring it into the Unix world."

Sun plans to ship the module in the first half of next year and will offer it as a free download. ■

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Cisco packs power in switches

■ BY PHIL HOCHMUTH



Cisco says its Catalyst 4500 line of switches can improve resiliency in a backbone or at the LAN edge.

SAN JOSE — Cisco last week unveiled modular wiring closet switches aimed at keeping converged voice and data networks up and running.

The Catalyst 4500 series of Layer 2 to 4 Ethernet switches can be configured to provide PCs with uninterruptible network connectivity and deliver inline power for IP phones and wireless LAN access points.

"A trend among Ethernet switch vendors has been to increase the kinds of functionality put into the wiring closet," says Chris Kozup, a senior research analyst with Meta Group. "Whereas before, everyone was preaching simplicity at the edge, and Layer 3 routing and other features in the core."

The Catalyst 4500 line consists of the 4507R, 4506 and 4503, which are seven-, six- and three-slot chassis, respectively. Each of the new switches comes with integrated power supplies for providing inline 48-volt DC current to IP phones; previous models required external power supplies.

They also can be outfitted with Cisco's upgraded Supervisor IV management module, which features more memory and works faster than previous versions. Two of the modules can provide subsecond failover for each other in the 4507R.

The 4507R and 4506 support up to 240 10/100/1000Base-T connections and have a switching capacity of 64G bit/sec. The 4503 supports up to 96 10/100/1000M bit/sec ports and has a 28G bit/sec backplane. All three can be outfitted with modules originally built for 4000-series switches.

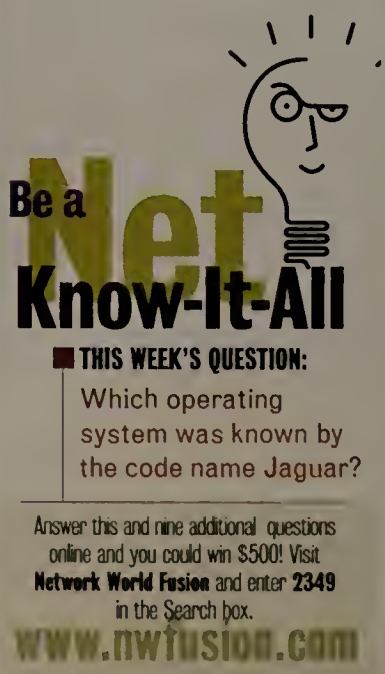
Security features resiliency include support for 802.1X, which provides user-level authentication, and line-rate Access Control Lists, for blocking groups or individual users from accessing network resources. Also included is the Dynamic Host Configuration Protocol Tracker, for locating which port an end user is attached to via a dynamically allocated IP address.

Coming next year in the Supervisor IV engine will be support for the NetFlow daughtercard. The card could be used to collect data about switch performance, such as monitoring application performance or overall switch activity.

Among the products that the Catalyst 4500 series will compete against Hewlett-Packard's ProCurve chassis switches, Enterasys Networks' Matrix switches and Foundry Networks' FastIron Edge Switches.

The Catalyst 4507R, 4506 and 4503 cost $10,000, $5,000 and $1,000, respectively. The Supervisor IV engine starts at $13,500.

Cisco: www.cisco.com



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Information by Phone Takes on a Whole New Meaning

Extend the value of your IP telephony solution with application and content transformation solutions from Cisco Systems

LOOKING AROUND TODAY'S OFFICES, HOTEL LOBBIES, OR COLLEGE CAMPUSES, YOU MAY SEE SLEEK new phones with eye-catching information displays. These phones demonstrate an exciting new advantage of IP telephony: the ability to enable interaction with business applications using the screens, and eventually the speakers, of these IP phones.

The convergence of voice, video, and data on a single IP network—enabled by Cisco AVVID, the Cisco Architecture for Voice, Video, and Integrated Data—is changing the way organizations communicate and conduct business. Voice and video can now be transported as high-priority data on the same network as routed data traffic, lowering network costs and optimizing business communications.

The Cisco CTE 1400 Series Content Transformation Engine enhances the benefits of Cisco AVVID by delivering applications to Cisco IP Phones, enabling their use as information appliances and streamlining operations across an enterprise. Equipped with a large LCD display, a browser, a high-speed connection, and a speaker, the Cisco IP Phones can be used for everything from making phone calls to accessing business applications and the Internet, all from one convenient place.

Through an easy-to-use graphical development environment, the Cisco CTE 1400 simplifies delivery of powerful applications to Cisco IP Phones. These "transformed" applications enable your company to increase productivity and improve customer service while realizing greater return on investments in both the phone system and corporate applications.



The Cisco CTE 1400 Series Content Transformation Engine

IP Phones, wireless personal digital assistants (PDAs), cellular phones, and two-way pagers. The Cisco CTE provides a built-in client adapter for Cisco IP Phones that transforms applications to the required screen size, computing power, and XML markup tag specifications. Example applications include:

- *Enterprise applications,* such as e-mail, intranets, corporate directories, conference-room booking, company dashboards, expense reporting, broadcast messages, sales force automation, inventory control, time clocks, scheduling applications, and order/shipment tracking
- *Service applications,* such as a "virtual concierge" for a hotel; price checks, an item locator, and an inventory check for retail stores; and online reference libraries, patient tracking, and scheduling applications for hospitals
- *Education applications,* such as attendance records, class and final exam schedules, campus directories, and AV equipment scheduling

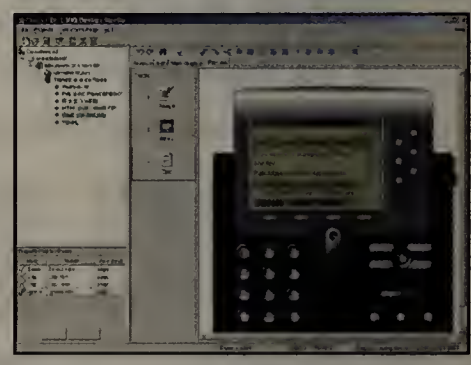
In some cases, a Cisco IP Phone can even eliminate the need to install a PC.

Transforming Applications and Content for the Phone Display

The Cisco CTE 1400 takes existing Web and extensible markup language (XML)-based applications and transforms them for display and access on Cisco IP Phones.

How It Works

The Cisco CTE has a simple point-and-click Design Studio tool that defines the portions, layout, and sequencing of the application that will be presented on the Cisco IP Phone. The CTE Design Studio includes an emulator of the Cisco IP Phone screen to guide application layout and testing. The Design Studio saves a set of transformation rules, which are used by the Cisco CTE whenever you access an application using a Cisco IP Phone.



Cisco IP Phones: Access data and email, collaborate with colleagues, and get voice mail—all from one place

Easy to Deploy

The Cisco CTE hardware requires only a single rack unit and integrates well with other network elements. Each Cisco CTE appliance provides Secure Sockets Layer (SSL) security for up to 1000 simultaneous connections and 10,000 user sessions; you can serve higher demand levels simply by adding Cisco CTE units. The solution works with—and requires no change to—existing Web and XML-based applications.

Optimize Business Communications

The combination of IP telephony and application transformation offers another way to optimize your business communications. The Cisco CTE provides a powerful tool for delivering applications and information access to many devices. Together, they bring new value and impact to conducting your business by phone.

Saving Money and Paper with Cisco

Forged Metals, Inc. is already seeing the benefits of Cisco IP Phones and the Cisco CTE. The Fontana, California-based company produces seamless rolled rings and open die forgings for jet engines, land-based turbines, and aerospace applications.

Forged Metals is using the Cisco CTE to connect Cisco 7960 IP Phones to an ADP time clock application and an Oracle E-Business Suite of applications. By replacing time clocks with an application on the Cisco IP Phone, Forged Metals estimated savings of approximately $12,000 on the two time clocks originally proposed, and the company soon extended the time-keeping solution to more than 100 locations throughout their facility, saving more than $100,000 on the entire project and gaining a more realistic and robust solution.

By transforming the Oracle E-Business Suite applications with the Cisco CTE, Forged Metals is replacing paper-based entry of job information. Employees now use the Cisco 7960 IP Phone to enter job transaction information and job costing data, which reduces the costs and error rate of transferring information from paper to computers. Forged Metals can also avoid the expense of using PCs or terminals to collect job information.

Forged Metals already offers tenancy on its Cisco CallManager IP telephony solution to its vendors and other companies looking to implement IP telephony. The company also plans to deploy applications on these tenant IP phones to improve interaction with its suppliers.

FOR MORE INFORMATION

- **For a LIMITED time, Cisco is offering a discount on purchasing the CiscoCTE 1400 and CiscoIP phones together. Visit: www.cte1400.com/offer to learn more.**
- **To learn more about the Cisco CTE 1400 Series Content Transformation Engine, visit: www.cisco.com/go/cte.**
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Fibre Channel getting its second wind

New products, standards move storage network technology forward.

■ BY DENI CONNOR

New technologies such as 10G Ethernet, iSCSI and InfiniBand have generated plenty of buzz in the network storage market over the past year. But the real action of late comes from a rather unlikely source: good old Fibre Channel.

Witness this sampling of recent and upcoming Fibre Channel news:

• Cisco blessed the technology by spending as much as $2.5 billion on start-up Andiamo Systems and introducing a line of midrange and director-level Fibre Channel switches based on technology obtained in the buyout.

• Network Appliance, which has made its reputation in the network-attached storage business, next month will add Fibre Channel to its mix with the addition of a storage device that handles not only file-level NAS but also block-level Fibre Channel storage-area network (SAN) data.

• New protocols for blending Fibre Channel and IP are nearing standards status within the Internet Engineering Task Force.

• Previously limited to 1G bit/sec, Fibre Channel products now handle 2G bit/sec throughput, and 10G bit/sec Fibre Channel is in the works.

The technology, which emerged in 1989, took years to catch on as a method for connecting server and storage resources in data centers and in SANs. Critics pointed to interoperability problems, distance limitations, cost and a shortage of experienced Fibre Channel experts in IT departments.

Yet Fibre Channel has won converts because the technology's speed and distance support has fared well against that of SCSI and other storage network technologies. Gartner says Fibre Channel was nearly a $1.5 billion business last year and likely will quadruple in size by 2006. And The Yankee Group says as many as 37% of organizations have SANs installed, with that figure expected to increase to 50% by year-end.

"Fibre Channel has proven itself to be worthy of the data center, and it works just fine," says Tony Prigmore, an analyst with Enterprise Storage Group. "We are past the queasiness phase of Fibre Channel — it has stabilized, and its interoperability is pretty good."

Prigmore adds that Cisco's increased support for Fibre Channel also is a boost for the technology in light of the emergence of 10G Ethernet and other storage network options.

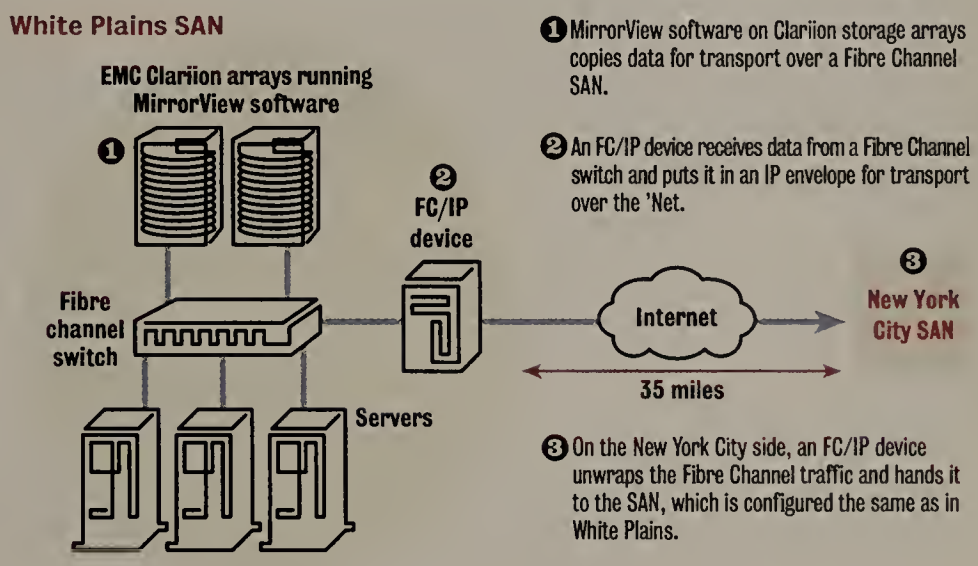
"When the 10G bit/sec Ethernet vs. Fibre Channel questions come up, you have to look at Cisco," he says. "Shouldn't they be leading us into 10G bit/sec as the storage interconnect? But it sure looks as if they believe Fibre Channel is the accepted data center interconnect."

Christopher Black, network operations manager for Effron, an investment and portfolio management company in White Plains, N.Y., is a Fibre Channel believer. He uses Fibre Channel-based Clariion storage arrays from EMC, Brocade 2G bit/sec Fibre Channel switches and CNT UltraNet Edge Storage Routers in his data center to mirror SQL data from one array to another across a 35-mile IP span (see graphic).

"We wanted to maximize our throughput to the disk, so Fibre Channel was the obvious choice — it was faster and better technology than SCSI," Black says. "We also wanted to be able to cut up the storage array and assign it to servers where and when we needed. Fibre Channel is the best way to do that."

Fibre Channel goes the distance

Financial firm Effron is using Fibre Channel over IP (FC/IP) technology to connect SANs between White Plains, N.Y., and New York City. Fibre Channel has been criticized in the past for its distance limitations.



Fibre Channel's next act

The good news for Fibre Channel users is that the industry appears committed to advancing the technology.

Cisco's Andiamo deal and Network Appliance's planned product announcement are signs of that commitment. What's more, the arrival of these companies on the Fibre Channel scene could drive down Fibre Channel pricing.

Cisco is expected to be so aggressive on pricing that an analyst from brokerage firm U.S. BanCorp Piper Jaffrey recently issued a research note in which he said Cisco's pricing strategy could "negatively impact Brocade's financial performance."

Brocade leads the market for Fibre Channel switching, with a 34% share, Gartner says.

According to Dragon Slayer Consulting, which tracks the storage market, the current price per director-level Fibre Channel switch port is $3,100, but is expected to fall to about $1,750 by year-end.

Fibre Channel users also can look forward to new products that will let them get more out of their SANs by extending them across greater distances.

Two new technologies, Fibre Channel over IP (FC/IP) and Internet Fibre Channel Protocol (iFCP), are designed to transport Fibre Channel traffic across IP networks, including the Internet.

Both technologies appear to be on their way to becoming IETF standards — increasing the likelihood of them becoming supported in products from mainstream network storage vendors.

Prestandard implementations of FC/IP are available from companies such as CNT and EMC, while products supporting iFCP are available from vendors such as Nishan Systems.

See Fibre Channel, page 26

Short Takes

■ **Marconi** last week announced general availability of its BXR-48000 switch router and a sale of the product to the U.S. government. Terms of the sale, including the number of switches purchased, were not disclosed.

The U.S. Department of Defense will deploy the switch, which scales from 40G to 480G bit/sec, in an OC-192 ATM network, Marconi says. The federal government has spent $1.3 billion over the years as a Marconi customer, during which time it has installed switches such as the ASX-200BX, ASX-1000 and ASX-4000 switches, the company says.

■ **InfiniCon Systems** this week will launch a switch for connecting servers containing InfiniBand host channel adapters to each other, as well as to storage devices on Fibre Channel networks and network or storage devices on Gigabit Ethernet networks. The InfinIO 7000 features as many as six 10G bit/sec InfiniBand ports, three Gigabit Ethernet ports and two 2G bit/sec Fibre Channel ports in a 3U (5.2-inch-high) rack-mounted chassis. It costs from $26,740 to $84,320 depending on configuration. www.infinicon.com

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XML appliances proliferating

Dedicated hardware is designed to validate, translate and route XML traffic.

■ BY ANN BEDNARZ

The beauty of XML is its platform independence and flexible yet structured format. On the flip side, XML documents are bandwidth hogs that require translation and need to be secured.

To satisfy XML's handling requirements, three start-ups have come out with appliances aimed at processing XML traffic quickly, securely and smartly. Each is emphasizing slightly different features, although their products overlap.

DataPower Technology is aiming for speed. Last month, the company announced the XA35 XML Accelerator, a network device built to process XML at wire speed and improve application response times. DataPower says its 1U (1.75-inch-high) XA35, which starts at $55,000, accelerates XML processing tenfold or more.

Forum Systems is tackling security. In June, the vendor released the Sentry 1500 hardware appliance for encrypting and decrypting XML content. The 1U Sentry 1500, which starts at $35,000, can protect the data within an XML document, not just the packet itself, Forum says. The Sentry 2500, a 2U (3.5-inch-high) model with built-in failover capability, is due this fall.

Sarvega is focusing on intelligent routing. In May, the company unveiled the XPE Switch, a content-aware switch that secures, routes and prioritizes XML traffic.

Sarvega's 4U (7-inch-high) XPE Switch, which starts at $100,000, can understand specific tags within an XML document and give priority to certain transactions, such as a sales order vs. a customer address change. The next version, due out by year-end, will be slimmer and include additional features for securing XML content.

At their most basic, these new devices off-load XML processing from application servers, which can get bogged down parsing, translating and routing XML documents. The devices sit behind a firewall and in front of Web and application servers. They read passing packets, perform required validation, translation and transformation tasks, and forward requests contained in the XML documents to an appropriate server.

XML handlers

Dedicated XML appliances relieve servers of XML processing chores, such as:

- Validating and logging XML traffic.
- Translating XML dialects.
- Prioritizing and routing XML traffic to appropriate servers.
- Encrypting and decrypting data within an XML document.

"All these companies see XML as the next network traffic that needs to be tamed. And they have a good point," says Ron Schmelzer, senior analyst at ZapThink.

Traffic management for XML will become increasingly important as traffic levels multiply, experts say. ZapThink predicts burgeoning growth: While XML today accounts for less than 2% of enterprise network traffic, by 2006 almost 25% of LAN traffic will contain XML documents, the firm says.

XML's processing requirements differ from switching and network protocol routing, Schmelzer says.

"Part of what makes XML different from other kinds of network traffic is that you can't identify it by packets in the header," he says. "You have to be able to look at every piece of information on the network, and you have to decrypt it, decompress it, parse it and understand it. It can be a real challenge."

The emergence of dedicated devices to handle these tasks is a natural evolution, according to Forrester Research.

"As the volume of XML traffic running between firms multiplies, the tasks of routing, parsing and acting on traffic will overtax general-purpose processors," Forrester says.

For Hemscott, a business information and research company in London, an XML bottleneck was hindering customer service.

To compile financial reports that customers access over the Web, Hemscott was pulling data from an Oracle database and translating it from XML to HTML to generate dynamic Web content. But the bulky transformations were bogging down servers. By moving XML processing onto DataPower's XA35, Hemscott was able to get its custom reports to customers in less than 1 second, as opposed to 15 to 20 seconds.

Ray Beaumont, technical architect at Hemscott, says the firm looked first at software options, but couldn't find any that could yield "orders of magnitude faster" XML processing. Beaumont says he would have preferred a software solution over adding specialized hardware that could potentially fail, but DataPower's performance gains won him over.

"We had a good debate about all that, and I'm comfortable we made the right decision here," Beaumont says. "There's nothing really that came near the XA35 in terms of a software solution."

While XML today accounts for less than 2% of enterprise network traffic, by 2006 almost 25% of LAN traffic will contain XML documents, ZapLink says.

Forrester compares XML processing to IP routing, Secure Sockets Layer encryption and intrusion detection — tasks that initially were handled by general-purpose servers and migrated over time to dedicated hardware.

As demand grows, better-known hardware vendors likely will tackle XML processing, along with the start-ups. Companies such as Cisco and F5 Networks already make application-aware devices that handle Layer 7 traffic based on the content of that traffic. Optimizing those devices for XML traffic could be the next step, experts say.

F5 will get into the XML processing market, Schmelzer predicts.

"If they're already looking at traffic, they can start to look a little more deeply at things like XML traffic," he says.

Indeed, F5 confirms that it is looking into the area of XML acceleration, according to a spokesperson. But the company declined to detail its plans. ■

RLX revs up new blade server

■ BY DENI CONNOR

HOUSTON — RLX Technologies last week announced a server blade it says runs Web and other applications twice as fast as earlier models.

RLX says its ServerBlade 1200i, which runs on a 1.2-GHz Pentium III processor, is designed to handle dynamic applications in clustered environments.

"What they have built is something that will have a lot of use for the Web tier in the data center," says Jamie Gruener, a senior analyst with The Yankee Group. "They still need to prove themselves a little more to be accepted at the application server tier. RLX faces a race against time with other large system vendors and their blade server platforms."

Among those challengers will be IBM and Intel, which last week announced plans to build blade servers together.

As for RLX, up to 12 of its new blades, which boast up to 2G bytes of RAM and one or two 60G-byte Integrated Drive Electronics (IDE) drives, can fit in a 3U (5.25-inch-high) chassis. Up to 168 blades handling 20 terabytes of data can fit in a standard rack.



Up to 12 RLX ServerBlade 1200s can fit in a chassis, and up to 168 can fit in a rack.

Each blade contains three Ethernet adapters — one for managing the blade and two for connecting to a network or network-attached storage. They can run Windows or Linux.

The 1200i is interchangeable with RLX's previous blades, the ServerBlade 800i and the 667. The 800i uses a low-power Pentium III processor operating at 800 MHz; the ServerBlade 667 uses a Transmeta processor running at 667 MHz. They are intended for load balancing, caching and static Web server environments, where density and low power consumption are important.

The company also has upgraded its Control Tower management and provisioning software. Version 4 adds role-based authentication and access, an increased provisioning capability and a high-availability failover option. The failover option consists of software and two RLX Control Tower 4 blades.

A 1200i with 120G bytes of disk space and 256M bytes of memory costs $2,230. The failover package costs $7,000.

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WIRED WINDOWS

Dave Kearns



Can an Apple a day really keep the IT expert away?

Sometimes I watch television just to be entertained by a series of advertisements, those that are more enjoyable than the shows that interrupt them. For example, take the latest round of Apple Computer ads — the "switch" campaign. Each supposedly showcases a former Wintel PC user who finally "saw the light" and went over to Steve Jobs' side. I find them so amusing because they are obviously targeted toward those who feel that *PCs for Dummies* is too technical.

There's Janie Porche, the young woman who saved Christmas (see www.nwfusion.com, DocFinder: 2333). It seems her poor dad needed to spend hours downloading drivers for his new digital camera (evidently her dad is still connected to the 'Net at 300 baud). Porche just "put a cord" between the camera and her Powerbook, and it automatically downloaded all the pictures. Imagine that — I wonder which brand of camera THAT was!

Of course, the big star is Ellen Feiss (the student many think was high on something during the shoot) — she even has a fan club and Web sites tracking her every move (www.ellenfeiss.net).

These are enjoyable not because of any planned humor, but because it really shows the Macintosh mentality. Porche probably complained to her car dealer, "Who wants to spend time putting gas in the car?"

But there's one that's actually scary.

Theresa McPherson (see DocFinder: 2334) tells us she is a lawyer who started her own firm but didn't want the instability of PCs, so chose Macs for her office. She also didn't like the IT department at her old firm. They would talk to her in words that were "too technical" for her to understand. She just wanted to be able to run the computers by herself. She's proud that her Macs are networked and she doesn't need an IT department. I wonder what she'd say if I made an ad for the Nolo self-help law site (www.nolo.com) saying that lawyers spoke in a jargon I couldn't understand, I just want to do it all myself?

Macs do have a place in the world. So do people who work on their own cars, computers or lawsuits. But the people doing the work themselves better thoroughly understand what they're doing because something will go wrong. You will, eventually, need an expert. And I would love to be the consultant McPherson has to call in when her network has a problem!

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@quill.com.

Tip of the Week

We've complained a lot about tech support and help lines from hardware and software companies, but one vendor that consistently gets high praise is **Cisco.** Now you can study how the company does it and perhaps adopt some of its methods for your help desk. Cisco Press has just published *E-Support*, subtitled *How Cisco saves millions while improving customer service.* Visit www.ciscopress.com to find out more.

Fibre Channel

continued from page 23

Further, products based on these emerging standards will be integrated with products from companies such as InRange and Sicorp that extend the distance of Fibre Channel links.

Another bright spot for Fibre Channel customers is that product vendors are starting to swap APIs that can be used to support multivendor management. EMC, Hewlett-Packard and IBM are among the companies that have been involved in such exchanges. A new specification called Bluefin also is on the table for managing SANs based on different vendors' products.

Effron's Black says managing a multivendor SAN from the same interface makes a lot of sense. "EMC isn't afraid with their AutoIS platform to manage not only their product, but other vendors' products," he says.

Obstacles exist

Despite all the progress, Fibre Channel still has its challenges.

"There are management and staffing issues," says Jamie Gruener, a senior analyst at The Yankee Group. "I hear people say they don't have enough staff [that knows Fibre Channel well enough] to build out SANs."

Observers say that while technologies such as FC/IP and iFCP are being worked on, even they don't solve all the latency and data-rate error problems that SAN traffic is prone to when traveling long distances.

And then there's the confusion that new technologies such as InfiniBand and iSCSI are generating. Are they complementary or competing technologies to Fibre Channel?

Prigmore says there is room for them all to coexist. InfiniBand is more for clustering servers, not so much for transporting data between servers and storage devices, he says.

And iSCSI is better-suited for small or midsize companies or branch offices within large companies than the more expensive Fibre Channel is, he adds. ■



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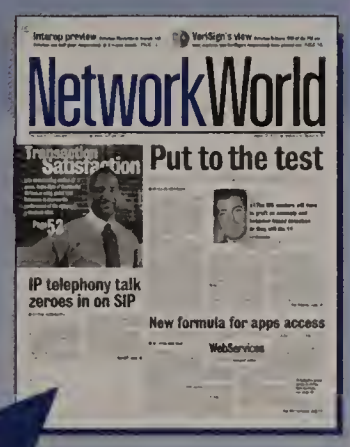
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Net.Worker

■ PRODUCTS, SERVICES AND STRATEGIES FOR TYING TELEWORKERS TO THE ENTERPRISE

Teleworkers drive broadband market

New report shows strong demand for VPN, Internet telephony and data back-up services.

■ BY TONI KISTNER

At last, broadband service providers have a surefire way to know which applications customers will pay for: Just follow the teleworkers.

Forthcoming research from analyst firm Parks Associates reveals that while consumers are interested in a variety of broadband services — everything from home networks to content filtering to environmental controls — that doesn't mean they're ready (or willing) to pay for them.

The report, "Broadband access @ home III, a survey of 10,800 Internet households," won't be released until Nov. 1, but Parks gave Net.Worker a sneak peek of the results in six categories we selected: Internet back-up, VPN, home security, environmental controls, videoconferencing (or video calling) and Internet telephony.

To yield richer data, Parks broke down the respondents by teleworkers and nonteleworkers, and then cross-tabulated the results. For the purposes of this report, Parks considered a teleworker someone who works at home at least eight hours per week during regular business hours, connecting to the corporate network. (Home-based business owners and those who take work home after hours fell into the consumer group.)

To help determine respondents' degree of interest in services vs. their willingness to pay for them, Parks asked them to rate their interest on a scale from 1 to 7, then used a proprietary method called the Relative Strength Formula to translate consumer interest into concrete, discernible consumer action/purchasing behavior, says Michael Greeson, Parks' senior analyst and director of broadband research.

"Using this formula, we've been within a margin of error of 10% for three years on all of our forecasts," he says.

While the report is targeted mainly to software vendors and broadband service providers, it also offers insight for network executives and small businesses tasked with helping create telework policies and providing applications to remote workers.

In particular, the results for data backup and VPN indicate that firms don't support their remote workers as well as they should. Teleworkers are 27.5% more likely to buy data back-up service than nonteleworkers and 19% more likely to buy VPN services. Nearly 30% of teleworkers want to subscribe to a VPN service; 24.6% want to subscribe to a data back-up service. Also significant, 24.8% of nonteleworkers would buy VPN services, a group likely comprising occasional teleworkers and employees who take work home after hours and want to connect to the corporate network.

As important, the survey proves teleworkers are better educated than nonteleworkers

See Teleworkers, page 30

Short Takes

■ **Positive Networks** today announced **PositivePro WebTop,** a Web-based addition to its remote access service. PositivePro creates IP VPN connections between the corporate network and teleworker sites, and gives administrators the ability to control the security and remote user environment and experience. WebTop lets teleworkers access corporate intranet sites, e-mail and files, and lets them run applications and access and control other PCs, such as their workstations, from remote locations. PositivePro costs $15 to $50 per user, per month. www.positivenetworks.com

■ The rise in the number of remote workers is spurring demand for broadband services by large companies, according to a new report from **Cahners In-Stat/MDR** called "Pipe filling: The applications driving demand for broadband in the main and remote offices." While continued growth is expected, 20% of enterprise customers said they wouldn't choose broadband for their main office locations.

■ **ExpertCity** last week announced Version 3.0 of its remote access service, **GoToMyPC Corporate.** GoToMyPC allows Web access to computers using Advanced Encryption Standard encryption; the new version lets administrators create distinct user groups and assign access rights to features, such as file transfer and remote printing. Also added is the ability to control the number of PCs each user can access. Pricing is based on the number of systems registered. www.gotomypc.com

Tiny Software security program traps telecommuters' Trojans

■ BY EARL GREER

The best security is a layered defense. Companies surround themselves with rings of firewalls, intrusion detectors and content filters, and yet malicious code occasionally penetrates and assaults their innermost hard drives.

NetworkWorld Review

Tiny Trojan Trap tackles this last possible breach with sandbox technology that places users' software applications into private sandboxes where they can play but can't do anything destructive.

In our tests, Tiny Trojan Trap protected files residing on Windows-based desktops, but you have to specify its boundaries — what it should protect and what it must leave alone.

Tiny Trojan Trap is a stand-alone application that can be installed remotely via, for instance, Microsoft's Systems Management Server or Novell's ZENWorks, to multiple remote desktops. A network professional would probably tweak the

See Tiny Software, page 30

Net Results

Tiny Trojan Trap 3.0.4

3.7 RATING

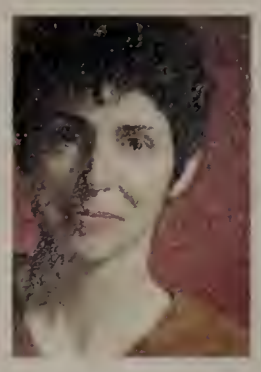
Company: Tiny Software, (408) 919-7360, www.tinysoftware.com **Cost:** $30 **Pros:** Performs security lockdowns of a very broad range of desktop computer resources. **Cons:** Requires an operating system expert to configure all settings.

What's the score?	Tiny Trojan Trap 3.0.4
Administration 30%	3
Ease of use 25%	3
Features 25%	5
Installation 10%	4
Documentation 10%	4
TOTAL SCORE	3.7

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. ■ **Scoring Key: 5:** Exceptional showing in this category. Defines the standard of excellence. **4:** Very good showing. Although there may be room for improvement, this product was much better than the average. **3:** Average showing in this category. Product was neither especially good nor exceptionally bad. **2:** Below average. Lacked some features or lower performance than other products or than expected. **1:** Consistently subpar, or lacking features being reviewed.

TELEWORKER BEAT

Toni Kistner



To pay or not to pay?

For the longest time we've been conditioned to ignore telephone pole and supermarket bulletin-board postings that offer lucrative work at home opportunities. Such scams are easy to weed out; unlike real jobs, they always offer great pay for no work and ask for money up front to give you the details.

The scammers have made it difficult for legitimate telework job boards to gain a foothold. So to distance themselves as much as possible, the first wave of telework-specific job sites generate revenue not from prospective employees, but from the employers looking to hire. While the model does protect workers from scams, it's failed to prod employers to offer telework jobs publicly, so their effect on the telework world has been minimal. Sure, telework jobs in big and small companies are out there, but until now it's been difficult, if not impossible, to negotiate for one up front. Smart prospects often don't even mention the idea of working from home until the firm's made an offer.

Despite the bad reputation of work-at-home offerings, a new job site called CareersFromHome is trying to jump-start the telework-specific job site market by charging prospective employees, not employers, for access to telework job leads. Launched in January, the site's reception has been mixed. Employers love it; 800-plus have signed up so far. It's the job hunters, often confused and skittish about paying anything, who've been reluctant to join.

The site is the brainchild of Denise and Tony Gauthier Jr.; he is a former Web marketing exec, she, a former human resources professional, based in Atlanta. In 2001, Denise decided to work from home to spend more time with the couple's three school-aged kids, so she began selling memberships to a list of telework jobs she hand-culled from Internet job boards. When demand for the service became too great, and the e-mail method became too cumbersome, the Gauthiers built the CareersFromHome site.

Much of the site is automated. Job candidates use the resumé builder to format their resumés to work with the site's optional search service, and employers post their jobs directly to the site. While the site is well-designed and professional, Denise says they spend a lot of time and energy convincing prospective candidates it's OK to pay for services.

"We're also often battling unrealistic expectations," Denise says. "We're educating job seekers to what telecommuting really is — nothing like the work at home signs you see along the freeway. Even so, we get complaints because people expect to find a job right away."

No matter, the Gauthiers are doing a lot of things right. Recently, MediaMetrix found that CareersFromHome.com jumped from 17th to seventh of the most visited job-related sites.

The service costs $9.95 per month or $45 per year, far from exorbitant. For no cost, employers can post a job description and receive resumés. For a fee of $100 per month or $800 per year, employers can search the resumés posted on the site.

Kistner is the managing editor of the Net. Worker section. She can be reached at tkistner@nww.com.

Teleworkers
continued from page 29

ers in the need for secure remote connections and file safety. The question is, do network executives want their teleworkers contracting with consumer broadband providers for corporate services? Probably not.

The results also show that teleworkers will be the early adopters of connected home technology — 22.4% of teleworkers are more willing than nonteleworkers to subscribe to an environmental monitoring service and 22.9% more likely to subscribe to a home security service. Nearly one-quarter of teleworkers (24.7%) is willing to buy home security services; 21.3% would pay for environmental monitoring.

"Teleworkers are a great target audience for every new type of service," Greeson says. "I can throw a dart at the teleworker space and find a service that's going to have a lucrative market."

The gap narrows between the groups in video calling/conferencing and Internet telephony (17.9% and 14%, respectively), which implies a large number of consumers, not just teleworkers, understand the value and are willing to pay for such services. About 21% of teleworkers would subscribe to such a service — that's a 20% difference between teleworkers and nonteleworkers.

"People understand and like the idea of adding video to a traditional phone call," Greeson says. "It makes sense to them."

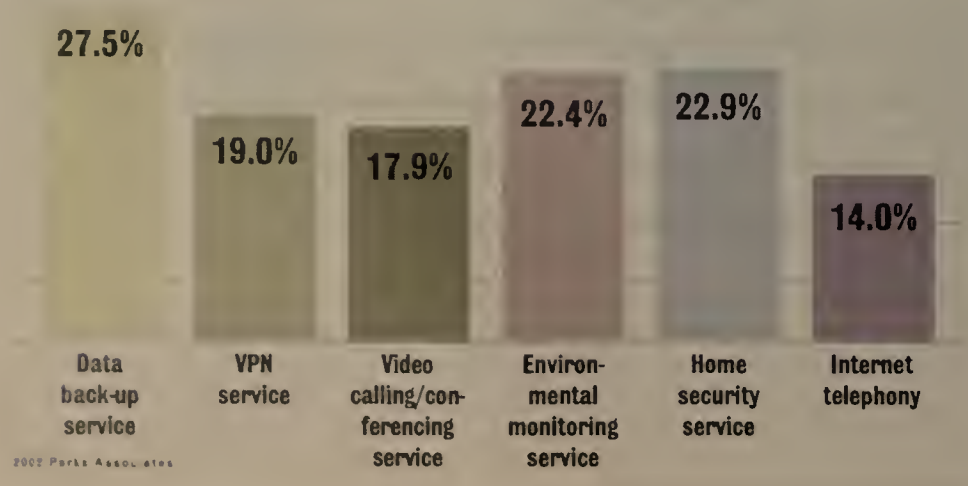
Smaller companies might welcome the thought of remote workers subscribing to corporate services from their service providers, but larger companies would find themselves supporting an ever-more-complicated remote workforce using a hybrid and inconsistent mix of company and personal services.

If the majority of teleworkers already pay for their broadband connections, would the company also expect them to pay for VPN and data back-up services? Ideally, the company should pay for everything the teleworker needs to do his job.

Parks: www.parksassociates.com

Leaders of the pack

A greater percentage of teleworkers than traditional consumers are willing to pay for broadband services, according to forthcoming Parks Associates research. The chart shows the percentage difference between them in six areas.



Tiny Software
continued from page 29

settings on each desktop to get it set up properly.

It was easy to install, placing almost all our existing applications in an unrestricted group, making the assumption that they had no dangerous aspects. (See How we did it, right).

The software then blocked our attempts to download a harmless PDF file containing the manual because the install program had placed Internet Explorer into an application group with restricted rights. We could read and print the file with Acrobat Reader because Acrobat was placed in the unrestricted application group.

We would have preferred an installation option that let us start with low, medium or high security options for our applications.

The Administration Tool used after installation has an easy mode setting that lets you adjust simple slide bars to the level of security desired for each application group. There is also a helpful list of all the application groups, and moving applications between groups is simply drag and drop.

The advanced mode has a two-pane window resembling Windows Explorer to match application groups to individual system components. Each application group gets access privileges specified for each system component. For example, you can specify that all the applications in a particular group can have limited access to individual services, hardware devices and even specific subdirectories of files.

Advanced mode also lets you add content filtering for Web access and outgoing e-mail. Trojan Trap does not provide a blacklist of Web sites or a list of suggested words to block outgoing e-mail.

There are some handy tools for handling cache and cookies. We set an option to delete all cookies after each session and edited the list of Web sites we visited, an automatic way to clean up your browser's cache.

When we tested the product on a multi-user computer, we were disappointed that each user cannot have his own Trojan Trap settings. We appreciated the password feature that prevents tampering with the settings.

Trojan Trap lets you adjust security downward to allow better computer performance. But on our 1.2-GHz Windows XP computer there was no noticeable performance hit at all at its highest setting.

Trojan Trap comes with the ability to launch antivirus scans and to automatically scan CAB files before they are installed. However, it couldn't identify Norton AntiVirus 2002.

Reporting in Trojan Trap is limited. We would have liked to have at least printed out some of the information in the Activity windows and sorted columns of data by clicking on their headers.

Overall, we would recommend Tiny Trojan Trap as an added layer of security to expert users and to average users who have the patience to adjust its settings.

Greer is a senior network analyst at a large Texas state agency. He can be reached at Earl.Greer@dhs.state.tx.us.

How we did it

We tested Tiny Trojan Trap Version 3.0.4 primarily on a Dell OptiPlex Gx110, 667 MHz running Windows 2000 Professional and also on a Compaq Presario 5000 1.2 GHz, running Windows XP Home Edition. We ran a batch file to delete several system files. We used a disk editor to manipulate the boot records on our hard drive. We sent an e-mail message using Microsoft's Outlook Express to test the e-mail filtering.

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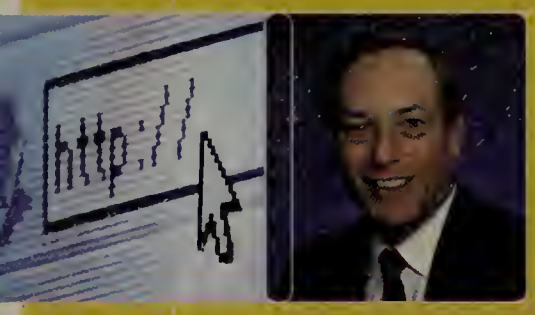
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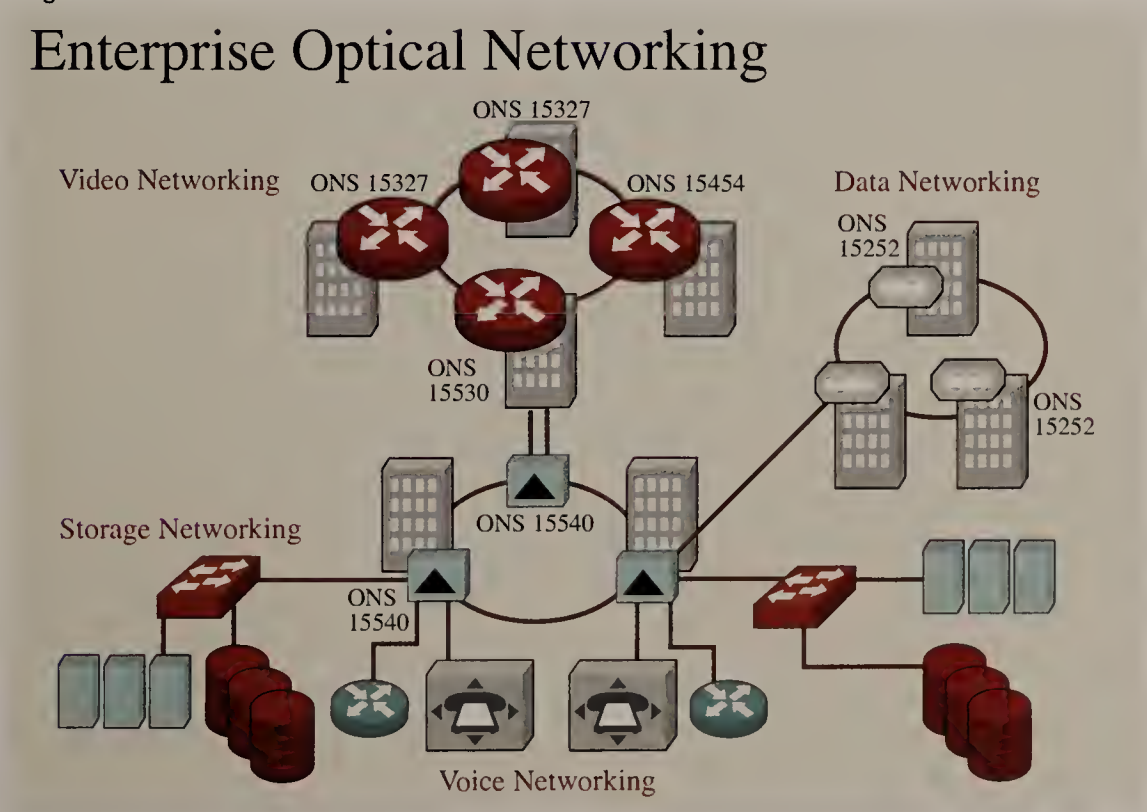
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Cisco COMET: Optical Networking Solutions for the Enterprise

OPTICAL NETWORKING has emerged as the foundation for campus, metro and wide-area networking with the ability to integrate voice, video, data and storage over a single network. Multiservice networking — through Synchronous Optical Networking/Synchronous Digital Hierarchy (SONET/SDH) and Wavelength Division Multiplexing (WDM) — provides increased bandwidth and performance while facilitating data center, application server, storage and network infrastructure consolidation to optimize resources and reduce costs. In addition, optical networking supports storage-area networking (SAN) and IP-based network-attached storage (NAS) solutions to effectively access, manage, and protect corporate data, and to provide the foundation for business resilience applications. Optical Ethernet provides a powerful dynamic, high-speed Gigabit Ethernet and 10-Gigabit Ethernet for high-capacity, high-performance applications.

Cisco Systems is an industry leader in next-generation optical networking. The Cisco Complete Optical Multiservice Edge and Transport (COMET) product portfolio integrates data, voice, video, and storage applications over a single, end-to-end optical network (Figure 1).

Figure 1.



Cisco COMET provides the optical foundation for Cisco AVVID (Architecture for Voice, Video and Integrated Data) and leverages Cisco expertise in IP, data networking, voice over IP (VoIP), storage networking and optical networking. Cisco COMET is designed to meet today's networking challenges while providing the network capacity, performance, and resilience necessary to meet future business application requirements.

Enable and Enhance Application Performance

Capacity, performance, and availability problems can stifle company growth, reduce business productivity, and result in user dissatisfaction. A Cisco COMET network provides virtually boundless capacity and performance, is easily scalable for traffic growth—from T1/E1 and Ethernet to OC-192/STM-64 and 10-Gigabit Ethernet—with aggregate throughput to 320 Gbps. In addition, Cisco COMET provides both the low latency and low jitter necessary for demanding VoIP, video, and collaboration applications.

Extend and Integrate Your Current Cisco Network

As the largest and most experienced provider of enterprise networks in the world, Cisco has the ability to deliver complete network solutions--both today and in the future. Cisco COMET extends an existing Cisco network infrastructure to deliver any application or service—such as IP, storage, Ethernet, time-division multiplexing (TDM), or ATM—over a single, end-to-end, optical network.

Optical transport products, such as the Cisco ONS 15530, 15540, 15200, and 15454, provide transport for applications delivered through the Cisco Catalyst® 6500 Series Ethernet switches, the Cisco 7600 Series Internet Routers, and the Cisco 12000 Series Internet Routers. This ensures that service levels created at the network edge (such as with VoIP services) are maintained throughout the optical core.

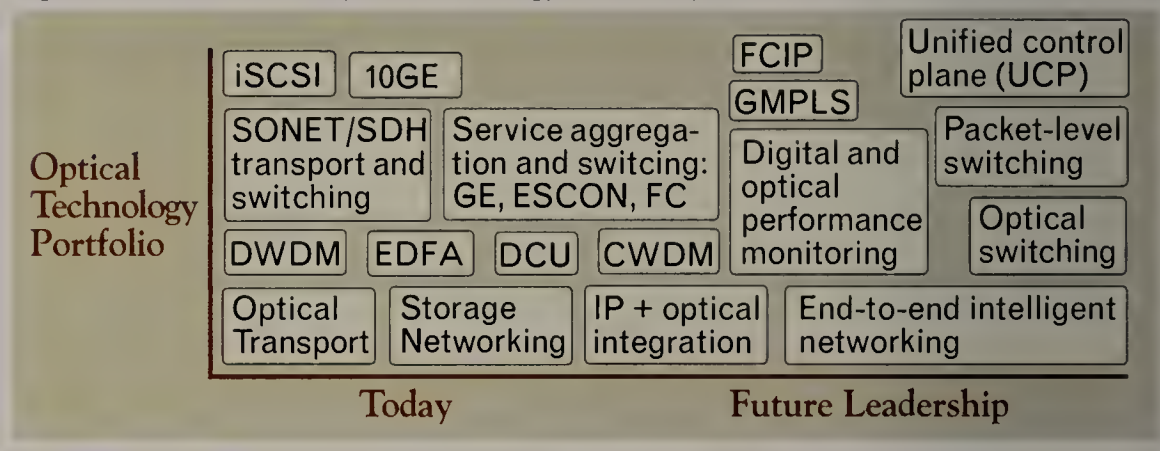
In addition, management of the Cisco COMET network is provided by a single, integrated client/server software application—the Cisco Transport Manager—which gives network managers visibility across the entire network.

Satisfy Current and Future Application Requirements

Cisco COMET provides a broad portfolio of optical networking capabilities to meet today's demanding application requirements, while providing the foundation for the bandwidth-hungry, performance-demanding applications of tomorrow. The breadth of available Cisco technology ranges from high-performance multiservice networking with SONET/SDH and DWDM, to IP-optimized transport through Gigabit Ethernet and 10-Gigabit Ethernet to Resilient Packet Ring/Dynamic Packet Transport (RPR/DPT). The Cisco portfolio also includes application-optimized solutions such as Fibre Channel, Enterprise System Connection (ESCON), Fiber Connectivity (FICON), Small Computer Systems Interface over IP (iSCSI), and Fibre Channel over IP (FCIP) for storage networking.

Cisco has quickly become the optical networking leader in the integration of voice, video, data and storage networking. Cisco is leveraging its expertise in IP, data networking, and pioneering efforts in maturing VoIP, while bringing storage networking and optical networking to the enterprise. Cisco is committed to maintaining its leadership position through ongoing technology developments that are moving rapidly from the innovation to deployment phases (Figure 2). These technology advances will protect and support enterprise network investments well into the future.

Figure 2: Cisco COMET Optical Technology Leadership



Enable Resilience Throughout the Network

Cisco COMET enables enterprises to deploy networks with the performance and resilience necessary for today's critical business services. Cisco COMET provides industry-leading system-level and network-level redundancy and reliability options, with protection at both the electrical and optical layers. Cisco COMET offers no single point of failure per system, optical layer protection with failover time of less than 50 milliseconds (for optical layer or SONET/SDH); and higher layer routing or switching, which provides the foundation for nonstop application networking. Predictable and measurable optical and digital performance provides the quality of service (QoS) necessary for policy-based networking.

Increase Network Productivity and Lower Total Cost of Ownership

Cisco COMET provides tremendous network flexibility through multiple technologies optimized to specific application requirements. The systems are designed for rapid bandwidth provisioning and fast deployment of new applications. Cisco COMET makes

network growth easy, allowing for minimum disruption to existing services, either through optical integration with existing routers or switches, high-capacity SONET/SDH switches, or complete DWDM systems with protocol and bit-rate transparent optical wavelengths. Through network flexibility, rapid deployment, maximized performance, and scalable management, Cisco COMET provides a lower total cost of ownership.

Cisco COMET Optical Networking Solutions

Cisco COMET enables many enterprise networking solutions, including network consolidation of data, voice, video, and storage; storage networking and business continuance; and optical Ethernet.

Network Consolidation and Multiservice Networking

Consolidating data centers, application servers, storage, and network infrastructure helps to optimize existing IT resources by providing consistent application and data access to all users and reducing overall support costs. Consolidating corporate Internet and intranet applications also provides a unified company presence to customers and partners. Cisco COMET facilitates network consolidation through SONET/SDH, Coarse Wavelength Division Multiplexing (CWDM) and DWDM multiservice networking capabilities.

Storage Networking and Business Continuance

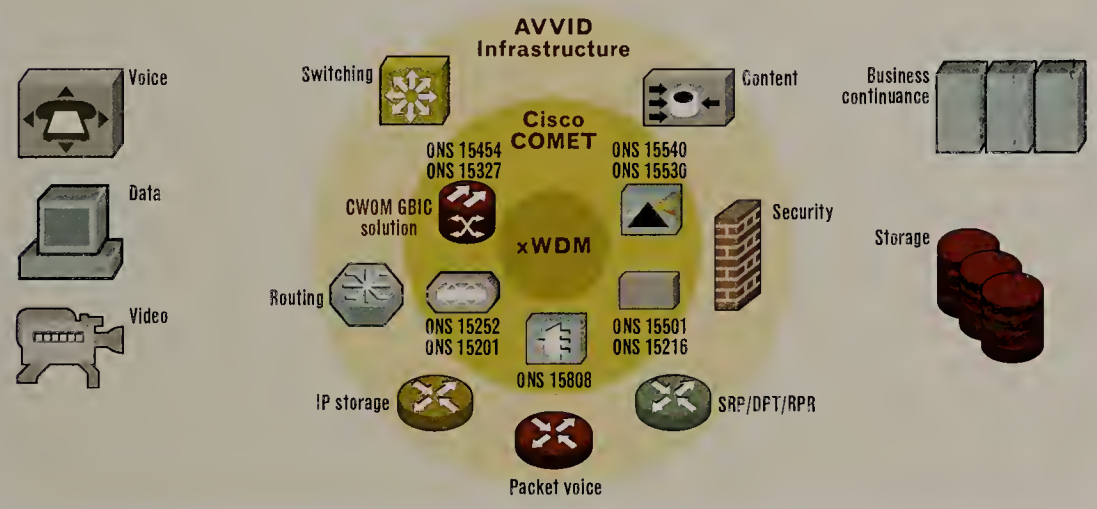
Storage networking provides IT managers with a cost-effective way to access, manage, and protect corporate data. Cisco COMET supports both SAN, with ESCON, FICON, and Fibre Channel connectivity, and IP-based NAS solutions. Storage networking improves data access, simplifies growth, streamlines administration, improves data availability and integrity, and reduces cost of ownership through storage consolidation. Storage networking also provides the foundation for business continuance applications, interconnecting data centers through a high-capacity optical network.

Optical Ethernet and IP Optimization

Optical Ethernet is a powerful tool for an enterprise network, because it allows Ethernet to be carried over a metropolitan area.

Figure 3

Cisco COMET: The Optical Foundation for Cisco AVVID



Cisco COMET supports Gigabit and 10- Gigabit Ethernet connections for very fast and efficient transport of IP traffic, eliminating the need for traditional protocol conversion and rate adaptation associated with traditional carrier wide-area networking services. RPR/DPT and Packet over SONET (POS) can provide an effective means of transporting IP traffic over a metro or wide-area network, offering enterprises the flexibility to consolidate applications over private or public backbones. Cisco COMET supports optical Ethernet and IP optimization over SONET/SDH, CWDM, and DWDM, and through the integration of optical technology into IP switches and routers.

The Cisco COMET Optical Portfolio

Cisco COMET provides complete optical solutions—from high-capacity, high-performance DWDM systems and SONET/SDH switches to optical integration with existing routers or switches. This diverse product portfolio meets a broad range of enterprise goals (Figure 3).

Campus, metro, and regional DWDM solutions provide an optical foundation for the consolidation of data, voice, and video, as well as storage traffic over a resilient, high-capacity, high-performance optical network. The systems are highly scalable, to a maximum of 32 wavelengths per fiber pair. With transmission speeds of up to 10 Gbps per wavelength, these systems can transport an aggregate capacity of 320 Gbps. Scalable optical add/drop multiplexing (OADM) capabilities support point-to-point, ring, and meshed topologies, providing optimized network design for campus and building interconnection. Topology flexibility helps minimize the amount of fiber required for network connectivity, while simultaneously maximizing the redundancy and restoration capabilities for failure recovery.

The systems support protocol and bit-rate-independent traffic from 16 Mbps to 2.5 Gbps, and are capable of transporting large quantities of high-speed traffic such as SONET/SDH, ESCON, FICON, Fibre Channel, and Gigabit Ethernet. Multiport aggregation modules further maximize network capacity by multiplexing multiple circuits onto a single wavelength. For example, up to 40 ESCON channels can be transmitted over a single wavelength, providing data-center connectivity for storage or disaster recovery applications. Demanding IP data or streaming media applications can be supported using 10-Gigabit Ethernet or OC-192/STM-64.

Optical amplifiers, dispersion compensation units, and performance monitoring units are available to extend network connectivity across large regional areas, while ensuring that the network operates at peak performance.

For bandwidth-intensive metro interconnect and long-haul applications, DWDM transport systems are available today that offer 80 channels at up to 10-Gbps transmission rates, scaling to more than 320 channels and 40-Gbps transmission rates in the future.

COMET DWDM solutions are designed to future proof the enterprise network, providing tremendous flexibility and scalability while minimizing costs and maximizing the transmission capacity over owned or leased fiber.

SONET/SDH multiservice provisioning platforms (MSPPs) combine the capacity of optical transport with the intelligence of IP to cost-effectively deliver next-generation voice and data services. These systems provide multiservice transport over a flexible, high-capacity SONET/SDH backbone. SONET/SDH add-drop multiplexing (ADM) and digital cross-connect capabilities provide traffic aggregation from T1/E1 to OC-192/STM-64, along with data interfaces such as 10/100-Mbps Ethernet and Gigabit Ethernet. Next-generation SONET/SDH provides a cost-effective means of consolidating new, high-bandwidth applications—such as Gigabit Ethernet—with traditional low-speed voice, TDM data, and Ethernet applications.

Cisco has also integrated optical networking capabilities into existing router and switch products. In addition to a wide range of optical interfaces, such as SONET/SDH, Gigabit Ethernet, and 10- Gigabit Ethernet on routers and switches, a CWDM Gigabit Interface Converter (GBIC) supports up to eight wavelengths over a single fiber pair. The CWDM solution supports OADM capabilities for building ring or hub-and-spoke networks. With each wavelength capable of carrying a Gigabit Ethernet channel, CWDM dramatically increases the traffic-carrying capacity of an existing switch or router. The Cisco CWDM GBIC solution provides an easy and cost-effective way to deploy Gigabit Ethernet in campus, data-center, and metropolitan-area access networks.

Optical transport is also provided on other products, such as storage routers, providing iSCSI, IP, and Fibre Channel networking.

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Enterprise Applications

■ PORTALS ■ MESSAGING/GROUPWARE
■ E-COMMERCE ■ SECURITY
■ NETWORK MANAGEMENT ■ DIRECTORIES

CA, BMC push portals for management

BY DENISE DUBIE AND ELLEN MESSMER

New Web-based management console oftware from Computer Associates and MC Software marks a move away from omplicated command-line interfaces that etwork executives and administrators tra-itionally have used to pore through sys-m logs to track network performance nd events.

CA's eTrust Security Command Center, hich oversees network security devices and software, and BMC's Patrol Perceive, which is focused on performance management, are designed to aggregate data on command and present it for analyzation.

"Today's portals are mostly about accessing and viewing data," says Rich Ptak, president of Ptak Associates, a consulting firm that tracks the network management market. "In the next few years, maybe sooner, these Web interfaces will let multiple users — from the systems administrator to the CIO — manipulate data and exercise control across networks."

Ptak says he expects to see similar announcements from competitors such as Hewlett-Packard and IBM Tivoli.

CA said last week that eTrust Security Command Center will be part of an expanded network security product line rolling out later this year. Russ Artzt, CA's executive vice president and eTrust brand unit executive, said Command Center "will bring all of security together, unifying VPN, access control and threat management."

Command Center will support CA security tools — including a new line of provisioning and access-control software packages — and Check Point Software firewalls. CA is offering a software development kit as part of a plan to enable Command Center to work with other vendors' security products.

Sharon O'Bryan, chief security officer at bank ABN AMRO's corporate and consumer clients division, says she expects to

See Management, page 38

Short Takes

■ **IBM** last week unveiled a software development kit for IT managers looking to simplify the deployment and management of PCs across their networks. **ImageUltra Builder** locates and centralizes the software images stored on networked PCs. These images are composites of important software stored on a user's hard drive, such as the operating system, crucial applications and databases. After developing and deploying a custom image across its network, a company can automate software application installation and more quickly and easily install new operating systems, IBM says. The software currently works only with IBM hardware, but IBM is working on a version that will work with other hardware by year-end. ImageUltra Builder 1.0 costs $1,500 for 100 licenses.

■ **Trend Micro** last week announced **InterScan WebProtect for ICAP,** Windows NT 4.0 server-based software designed to accelerate virus scanning by communicating with caching appliances from vendors such as Blue Coat Systems and Network Appliance. The software works with caching appliances that support the Internet Content Adaptation Protocol, which was devised for sharing information across vendor equipment. A 100-user license costs $1,360. www.trendmicro.com

Software adds oomph to Lotus apps

Stampede picks up where it left off with remote user software.

■ BY JOHN FONTANA

DAYTON, OHIO — Stampede Technologies, which offers software for making Lotus Domino work better for remote users, is now turning its attention to local users with a client/server package that boasts new traffic control, storage and management features that work over LANs.

The company's Enterprise Edition of TurboGold features technology to make HTML-based traffic faster by as much as 65% and compression technology that optimizes storage capacity by nearly 85%, according to company officials. Stampede says new support for multicast improves efficiencies of broadcast updates to Domino server databases by as much as 85%. A new management console promises administrators control from a single location.

"What companies want today is to get more [return on investment] out of their systems and to get more productivity out of users," says Dana Gardner, an analyst with Aberdeen Group. He says Stampede's technology lets companies move data more inexpensively and efficiently, and loosen storage-limit constraints on users. Stampede also is poised to move beyond Domino in future releases to include XML data, which can be bandwidth-intensive.

"Stampede seems ready to move upstream to providing acceleration for that data," Gardner says.

Stampede's Enterprise Edition Web acceleration focuses on Domino server applications, Lotus's Web-based e-mail and QuickPlace, its Web-based team collaboration application.

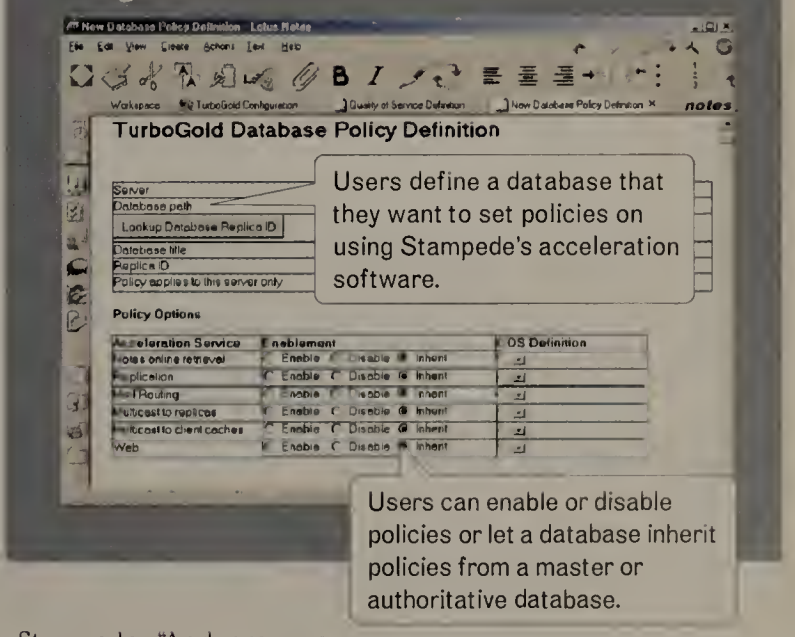
The new compression technology, AutoZip, automatically zips attachments stored on the Domino server. This lets companies add storage capacity without upgrading software or hardware. Attachments are unzipped automatically when sent between users of Notes clients with TurboGold software installed. Recipients without TurboGold must unzip attachments manually. The company also offers a stand-alone AutoZip Server Utility that can be used to zip existing attachments on a Domino server.

The Enterprise Edition's Multicator feature plugs into an IP network's multicast features and broadcasts updates from Domino databases.

"Updates are sent individually to each user. Now you can do that through multicast," says Tom Yohe, vice president of engineering for Stampede. "And we use Domino replication to ensure that the update is delivered."

Policy manager

Stampede's TurboGold Enterprise Edition includes a policy manager for tuning the acceleration and storage features of the software for Lotus Domino.



Stampede also has added traffic-shaping capabilities that plug into network-based traffic-shaping engines, such as those from Packeteer, which has formed an alliance with Stampede. Users can attach quality-of-service levels to Domino server applications, databases and e-mail along with assigning that traffic to specific ports.

Finally, Enterprise Edition comes with a policy management engine that lets users set priorities on all the new features.

TurboGold supports Lotus Domino 4.51 and above. The client runs on all Win32 platforms, and the server runs on Windows NT, 2000 and XP; and IBM's iSeries, pSeries and zSeries platforms.

Client licenses start at $63, and server licenses start at $1,913.

Stampede: www.stampede.com

Entercept tries to save SQL Server

Software designed to stymie SQL injections.

■ BY ELLEN MESSMER

SAN JOSE — Entercept Security Technologies, expanding beyond its Web server security tools, last week announced software designed to keep Microsoft SQL Server databases safe from attackers.

Entercept Database Edition, which runs on the same machine hosting SQL Server, takes aim at so-called SQL injections, a hacking technique used to undermine database server security.

In a SQL injection, the attacker tries to enter text containing command language during a SQL-based search so the injected code would be executed to give the attacker complete control of the database server. The success of such an attack is often not because of a flaw in SQL Server but because developers neglect to program the database so that it validates input properly. Entercept's security software intercepts SQL injection attempts and blocks them.

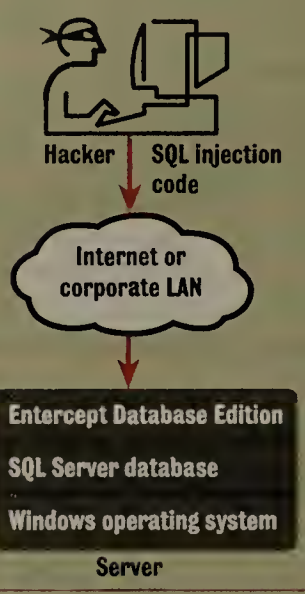
Companies such as KaVaDo, Harris, Okena and Sanctum offer competing software. But Entercept hopes to garner customer interest by building into Entercept Database Edition the same kind of behavior-blocking software available for its Web server product. Entercept says its new product would prevent even hackers that have gained access to a database to use it as a launch point of attack by noticing the activity as suspicious and blocking it.

Entercept Database Edition, which costs $3,000, only supports Microsoft SQL 2000, but versions for Oracle and other databases are planned for in the future.

Entercept: www.entercept.com

SQL injection rejection

Entercept's latest software is designed to protect SQL databases from attack.



Entercept Database Edition software, which runs on the same Windows server hosting Microsoft SQL Server, blocks attempted "SQL injection" attacks by filtering out queries that include improper inputs.

HandsFree gets fingers into asset management

■ BY DENISE DUBIE

NEWTON, MASS. — A start-up this week will release upgraded systems management software that includes asset-tracking capabilities an early adopter says is as functional and costs less than rival products.

HandsFree Networks' Automated Support Infrastructure (ASI), which debuted in June, now can gather hardware statistics, BIOS information, software licensing and version data from desktop PCs across a network. The upgraded software, Version 1.3, also boasts a Web-based graphical user interface that can access canned reports or generate customized ones.

ASI users also can configure the software to track, for example, the activity of a specific application or user on a network, says Alessandro Donnini, HandsFree's president. "We've upgraded the software to manage application usage, which will help network managers better plan for licensing and upgrades," he says.

Phil Kubat, CEO of CBE Technologies, an IT professional services company in Boston, uses ASI in his company's internal network and in its managed services offerings. CBE performs server, desktop and firewall management services, and Kubat says ASI's open platform lets the company extend its services in many user environments.

"HandsFree is an open platform with a lot of flexibility, and it performs right up there with high-end tools," says Kubat, who also evaluated products from Tivoli Systems.

While Donnini says HandsFree's software might perform similar functions to those in Tivoli software, he sees the company's software competing more with Altiris' Asset Mgmt Suite, Intel's LANDesk and Novell's ZENworks. And while Altiris costs $58 per node, HandsFree's ASI costs $2 per managed device per month when between 10 and 99 nodes are purchased. Donnini says the payment model lets customers try the software before committing a lot of cash.

ASI includes server and client software. The server component can run within an intranet or at a remote location, connecting via the Internet. The server includes an event log database from which network managers generate reports and are notified of events. ASI client software agents are installed on each managed device. Each agent includes a database in which all the availability, performance and event data is stored. ASI supports devices running Microsoft Windows 95 through XP operating systems.

The software comes with scripts, which automate management and support tasks. The software reacts to known events in the Windows environment and uses predefined resolutions to take corrective action. Network managers also can configure ASI to perform automated actions based on their own knowledge of dealing with their networks.

The software is currently available through resellers and channel partners, but HandsFree plans to sell direct in coming months. ■

Heroix adds automation, report features to eQ

■ BY DENISE DUBIE

NEWTON, MASS. — Heroix this week is expected to release a version of its systems and applications management tool that includes more platform support, enhanced autoconfiguration features and a graphical Web interface to help users pinpoint problems and distribute reports to upper management.

Heroix eQ 1.5, formerly known as RoboMon, includes a Web Event Monitor that helps network managers zero in on performance problems. Upon installation, the software autodiscovers operating systems, databases, applications and servers. It also begins baselining the behavior of those elements. The software would monitor applications, such as Microsoft Exchange and BEA WebLogic, to see how they perform in peak and slow network conditions. The software then uses the baseline to determine when abnormalities occur.

The new Web Event Monitor will serve up a report detailing only those machines experiencing problems, which can go a long way toward reducing the mean time to resolution, says Randal Pacheco, network support engineer at Oceanic Time Warner Cable of Hawaii.

"It lets me see multiple servers through one interface, so I can look at logs on a lot of servers rather than one by one," Pacheco says. He has used Heroix software (RoboMon and now eQ) since 1998, and says he chose Heroix over competitors such as BMC Software and NetIQ for two reasons. "I just went with the least-expensive product that required the least configuration out of the box," he says.

Pacheco beta-tested Version 1.5, and says the feature that most appeals to him is the added monitoring for application usage on Windows and Solaris servers. Another new feature relies on eQ's baselining capabilities to learn the configurations of servers and applications. With the stored data, the software can perform autoconfiguration and make deploying new servers and applications easier, Heroix says.

Heroix includes agents and a management console with which to configure and distribute them. Network managers also can generate reports and graphs using the console, which includes a SQL database that stores the performance data the agents collect. The agents are autonomous, monitoring events and taking corrective action without communicating with the console.

Heroix eQ software comes written to monitor specific performance metrics in databases, operating systems, messaging applications, Web and e-commerce applications. For example, new to this release are 18 new Active Directory sensors.

Heroix eQ's architecture is a key differentiator from competitors such as BMC and NetIQ, says Jean-Pierre Garbani, an analyst with Giga Information Group. He says while many management agents sap up to 25% of a server's CPU resources to run, eQ uses only 1% of the those resources on a managed server.

"In a climate where all IT operations are optimizing resources, it is also important to minimize the amount of computing power used by the management tools," Garbani says.

Heroix eQ runs on Windows NT and 2000, AIX, HP-UX, Solaris, Linux, OpenVMS and NetWare.

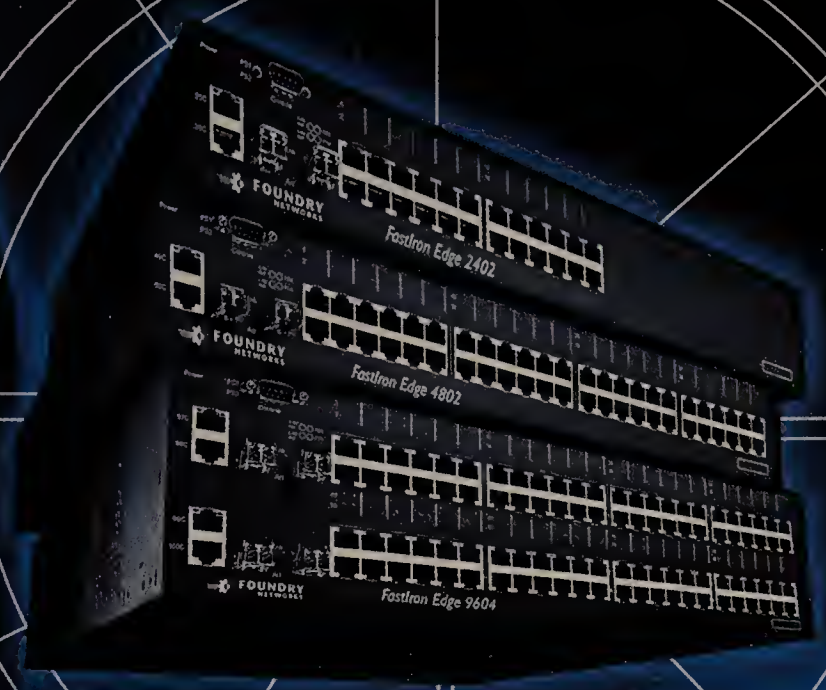
Heroix eQ 1.5 costs between $75,000 and $100,000 on average, and is available now. ■

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Fixated on faces

What is it about people's faces that makes otherwise logical people totally ignore logic, human nature and years of experience? That could be the lead in to all sorts of topics, most of which wouldn't fit under the umbrella of what this paper thinks its readers are interested in. In this case, this is a lead into a discussion of video over the 'Net.

What brought this topic to mind was a Sept. 12 story in the Circuits section of *The New York Times* about two new video e-mail products. Both let the user record a video snippet to be used in place of a text or still picture e-mail message. The first thought that pops to mind is "Why?" Sure there are some show-grandma-the-grandkids types of applications, but what would have caused a venture capital company to think that there was a significant enough business market for this type of technology to warrant funding these companies?

The *Times* story called these products "video karaoke" and like with traditional karaoke, you have to have a healthy ego or a very good sense of humor to subject others to your efforts (or maybe too much alcohol or some other drug).

Whatever the drug, it seems to be a long-lasting one. Companies and pundits have pushed videograms and videoconferencing as potential pots of gold seemingly forever, especially in times of economic crunch. But so far they have been consistently inaccurate.

There is a market, but not all that big of one. Maybe there will be a big market when the quality gets good enough to see if the person you're talking to is rolling his eyes as you're talking, but somehow I just don't see the attraction until at least then. Even then, I'm not sure the conversation is helped by the moving pictures.

Pundits have pushed videogames and videoconferencing as potential pots of gold forever.

My problem is that I don't see what the video adds to most of the phone conversations I have that would make me want to spend much more to get video. (This does not take into account that the advent of video would mean that I would have to clean up at least one part of one wall in my Harvard and home offices.) Good quality voice and a shared whiteboard seem to get you 90% of the way to an ideal situation — high-quality video, to me, would provide at most the other 10%.

I must be missing something. Too many people, for too long, have chased this rainbow for it to just be light reflected through vendor-produced fog. But just maybe, it's someone else who doesn't get it.

Disclaimer: Harvard produces both fog creators and fog cutters, none of whom to my knowledge have weighed in on this topic — so this must be my own fog light.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

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test a beta version of Command Center. She says she needs to consolidate security information related to the bank's network and 110,000 employees worldwide. "I report to the CEO. I need to be prepared at a moment's notice to provide this information to the CEO," she says.

BMC this week separately will announce its server-based Patrol Perceive software, which is designed to let users access historical, real-time and predictive system and application performance data through one Web-based graphical user interface.

Ptak says that with Patrol Perceive, BMC is offering users a fast, easy-to-use report generator. The software uses new and historical data collected by existing BMC Patrol and other agents, and serves as a gatherer of information.

Users can customize documents, graphs, spreadsheets and reports that can be exported to Microsoft Excel, Adobe PDF, XML and/or printer-ready formats.

"BMC is taking data that's already available, yet not necessarily easily accessible, and making that data useful to multiple users," Ptak says.

Patrol Perceive costs $100 per server.

CA: www.ca.com; BMC : www.bmc.com



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ServiceProviders

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Wireless carriers might get FCC relief

FCC decision seen clearing the way for freedom from billions of dollars in spectrum obligations.

■ BY GRETEL JOHNSTON AND JOHN BLAU

WASHINGTON, D.C. — A handful of high-profile wireless service providers have moved a step closer to gaining a sorely needed financial reprieve thanks to a proposal from the Federal Communications Commission that would free the carriers from paying the government billions of dollars for spectrum licenses.

The proposal would let wireless service providers such as Cingular Wireless, Verizon Wireless and T-Mobile, formerly VoiceStream, walk away from their bids for wireless licenses that the FCC auctioned off in January 2001 after repossessing them from NextWave because of nonpayment.

A majority of the wireless service providers involved must accept the proposal before the FCC makes a final ruling.

The status of the bids fell into limbo when the FCC's auction was nullified in June 2001 by an appellate court, which ordered the FCC to return the licenses to NextWave. A settlement calling for the bankrupt wireless operator to transfer the licenses to the winning bidders in the re-auction fell apart last year. Since then, all parties have been waiting for the Supreme Court to rule on the matter. A ruling is expected as early as next month.

Approval of the new FCC plan does not mean that Verizon and others would not try to buy more spectrum. Most expect the same service providers to buy more spectrum but for billions of dollars less. The market value of the spectrum is roughly half of the $16 billion bid last year, a source close to the situation says.

About half the bids belong to Verizon Wireless, which offered $8.7 billion for the spectrum. A Supreme Court ruling against the carriers could have a huge effect because they are liable to pay within 10 days of the ruling, says David Hoover, an analyst with Precursor Group.

Dollars spent?

If an FCC proposal is accepted by the U.S. Supreme Court, wireless service providers will not have to pay for the spectrum licenses they bid on in January 2001. Here's what the top bidders were planning to spend:

Alaska Native Wireless*	$2.9 billion
Cingular Wireless	$2.3 billion
T-Mobile (formerly VoiceStream)	$483 million
Verizon Wireless	$8.8 billion

*An AT&T Wireless affiliate

Verizon has credit lines of $8 billion set aside to cover the liability while the case is going through the courts, Hoover says. That is credit that's not being used for anything else, including network buildout, equipment upgrades and acquisitions. The government realizes that absolving the companies could help the industry, he added.

These carriers have what's called "contingent liability" hanging over their heads, says Roger Entner, program manager at The Yankee Group.

Creditors look at Verizon and say they have $16 billion in debt when you figure in what the carrier technically owes the FCC. "The proposal makes it easier for the carriers to bail out of their contingent liability," he says.

The proposal also is good for the wireless industry.

"Post-WorldCom, the sector is not doing particularly well and [the administration] is trying to come up with some ways to kick start the sector," Hoover says. "They believe they can take a one-time hit ... by allowing carriers to walk away from their bids."

The FCC proposal would allow a comment period lasting through Oct. 11. The FCC, which already gave back billions of dollars in down payments to the bidders, has so far refused to free the carriers from their obligation to pay the remainder of their bids if the government were to regain the NextWave spectrum.

The proposal to fully release the companies from their obligations acknowledges that because the commission issued its

See Wireless, page 42

Short Takes

■ **Cable & Wireless** is selling its list of voice-service customers to **Primus Telecommunications Group** for up to $32 million. This will mark C&W's official exit from the business voice-service market, which the company originally announced in May. Within the agreement, Primus will pay the carrier for each customer that transfers to its network. C&W has about 35,000 voice customers. C&W likely will lay off its 450-person staff that has supported its voice service division. All customers are expected to be transferred to Primus by January.

■ Smaller businesses in the Midwest have a new choice for their IP voice and data services. Start-up service provider **Appia Communications** is bundling unlimited local and long-distance voice and dedicated high-speed Internet access services for business with 20 to 200 employees. The package is supported over a dedicated T-1. The service starts at $50 per month, per phone, with a minimum of 20 phones per business customer. The company says it charges more for its service in areas where local T-1 rates are higher. Appia supports its service with Cisco IP phones at each desktop and Cisco network gear.
www.appia.com

Broadwing eases IP videoconferences

■ BY DENISE PAPPALARDO

CINCINNATI — Broadwing Communications is making it easier for its dedicated Internet access customers to support IP videoconferences.

The carrier recently launched its managed IP Videoconferencing service that lets customers use their existing IP bandwidth to support companywide videoconference sessions.

The service is available in two flavors: user-hosted and Broadwing-hosted. The user-hosted option requires that customers use an online tool to set up their videoconferences. The Broadwing-hosted option offers customers more assistance with a team that sets up, provisions and monitors videoconferencing sessions while in progress.

"As users start putting more applications over their existing IP used only for data, they're able to maximize their investment from a network standpoint," says Counse Broders, an analyst at Current Analysis. Although Broadwing is not the only provider offering customers managed videoconferencing services, it has a leg up on competitors such as Equant and Global Crossing domestically, he says.

"Equant is well-known overseas, but Broadwing has a solid network reputation in the U.S.," he says. "And most users looking at Global Crossing need to take a sit-and-wait attitude." Global Crossing filed for bankruptcy protection in January and is under Securities and Exchange Commission scrutiny.

Equant's offering is specifically for its VPN customers where Broadwing's is available to any of its dedicated Internet access users (see www.nwfusion.com, DocFinder: 2330).

Customers can buy preconfigured Polycom ViewStations directly from Broadwing for between $8,700 for a small-room system up to $17,700 for a large-room system. Customers are not required to use Broadwing-provided Polycom gear but may deploy any H.323-compliant equipment.

The carrier also offers coder/decoder conversion for its Broadwing-hosted customers. This will let a customer using Polycom gear to communicate with another location that is using Sony gear, for example. Customers can expect to pay a $2 per conversion, per session fee for this feature.

The service costs $119 per month plus 75 cents per minute for each videoconference for user-hosted customers. Broadwing-hosted customers are charged $1.16 per minute for each videoconference. ■

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EYE ON THE CARRIERS

Johna Till Johnson



How to build a better telecom organization

I have an inner gauge for how well a telecom department — or an IT department, for that matter — is run. Within two hours I can usually tell whether an organization is efficient, productive and cost-effective.

And that assessment tends to be a pretty good proxy for the company: Chaotic, ill-run companies tend to have chaotic, ill-run IT departments and vice versa.

What do I look for?

Structure. A well-run IT department is generally organized along the "design, build, operate" paradigm. Most organizations recognize that it takes different skills and focus to create a brand-new architecture than it does to ensure 99.999% availability. And virtually every company has merged its voice and data WAN unit in recognition of the fact that the distinction between voice and data services is rapidly blurring.

Organization. A particularly good indication of an effective telecom department is that meetings begin and end on time, with clear agendas, well-articulated goals and a coherent progression of events. Projects have a well-defined scope. Managers provide regular status reports and updates. This organized approach pays dividends — even during the most critical projects, people can put in eight- to 10-hour days, instead of the 12- to 18-hour days that are all too familiar to most of us.

Culture. The term "culture" is often used (and misused). A cornerstone of culture is open, honest, regular communication. Specifically, people should proactively keep each other informed about critical issues and events. Too often, turf wars and ego battles lead to "information silos" that result in wasted effort.

Focus. A telling sign of a well-disciplined organization is that IT initiatives are consistently expressed in terms of the core business. Performance isn't measured in milliseconds or availability — it is measured in revenue gained or costs avoided.

If the description above fits your telecom organization, congratulations and keep up the great work.

Most likely, it doesn't — only about 5% of the organizations I talk to regularly meet that description.

If you feel your department could use work, here are a few tips:

- Start by looking in the mirror. IT executives are more responsible than they realize for "setting the tone" for those around them. Make sure that you personally instantiate the structure, organization, culture, and focus that you expect from your peers and supporting staff.
- Then take a critical look at your team. Too often, organizations keep prima donnas on board far too long, for the wrong reasons. You know the folks I'm talking about: those individuals who are abusive, secretive, disorganized and generally tough to get along with. The excuse for keeping these people is their talent (real or imagined).

Prima donnas destroy far more value than they deliver. And if you really think that talent is so hard to find, check out the resumés on Monster.com. Make it clear that behavior that conflicts with the values above will not be tolerated — and stick to it.

Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting and engineering firm. She can be reached at johna@greenwichtech.com.

Interland touts reliability of hosting model

BlueHalo service said to trim costs, eliminate single point of failure with redundant architecture.

■ BY JENNIFER MEARS

ATLANTA — Interland, a leader in the shared hosting market, is touting a new architecture that uses redundant servers to eliminate the single point of failure typically associated with most shared hosting scenarios.

Traditionally, shared hosting has meant that multiple accounts are hosted on a server. Such services save customers money — shared hosting runs between $20 and $200 per month, while dedicated hosting can cost tens of thousands of dollars per month — but they also leave customers vulnerable to problems because they are sharing hardware and system resources.

Interland is aiming to eliminate those issues with its blueHalo service, which it introduced last week. BlueHalo employs a redundant architecture to provide high availability to shared hosting customers.

Customer content is hosted in shared network-attached storage devices, rather than on shared servers. That way, content can be served from an array of servers and there is no single point of failure. Load balancers direct traffic across the servers to ensure the best performance. BlueHalo also includes redundant firewalls, which provide an additional level of security, the company says.

The service includes a 99.99% uptime service-level agreement that calls for refunds for violations.

BlueHalo also includes new automated management tools to ensure that no sites are adversely affected by other accounts sharing the system. Code Manager monitors Web application code and provides suggestions to correct problems. Process Manager sets thresholds for resource consumption and monitors accounts to enforce them.

Web site development and Internet computer consultant Kurt Weiss of KW Productions says blueHalo is providing his customers with a hosting environment they normally would not find in a shared hosting package.

"In shared hosting, some single user can hog resources. With blueHalo that's much less likely to happen, and if it does happen the technology allows them to pinpoint who's doing it and they can take care of it," Weiss says.

Analysts say Interland, which competes with companies such as Affinity Internet and Ver, is raising the bar in shared hosting as small and midsize businesses look for more robust hosting platforms. Such businesses are increasingly expanding their Web presence, adding e-commerce functionality, for example, that demands better hosting capabilities.

"This platform allows companies to have a more reliable Web site," says Helen Chan, an analyst with The Yankee Group.

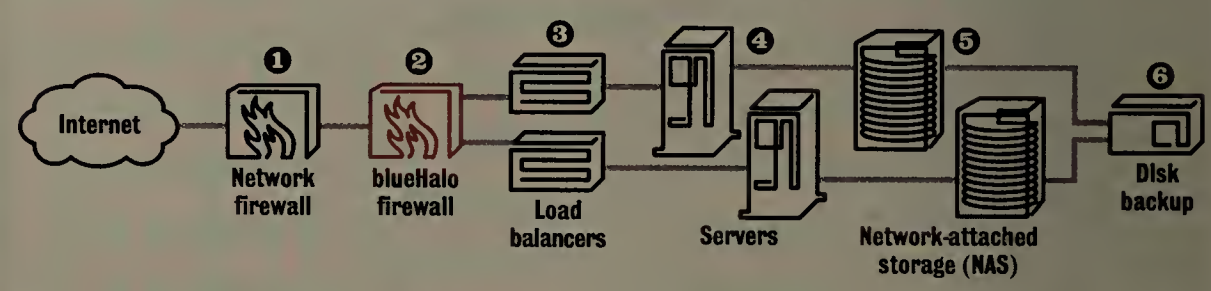
"That's a selection criterion that a lot of companies are starting to use as a reason why they're choosing a particular provider," Chan says. "It used to be selection was based on price."

BlueHALO is available on Windows or Linux servers and starts at $20 per month.

Interland: www.interland.net

Sharing the load

Interland's new shared hosting architecture promises high availability. Here's how:



1. Like traditional shared hosting, the network firewall acts as a gateway.
2. A blueHalo firewall adds additional protection.
3. Instead of sending traffic to a single shared server, blueHalo load balances traffic for multiple customers among redundant servers.
4. Redundant servers ensure delivery of content even if one server fails.
5. Content lives on a NAS and can be delivered quickly to a variety of servers.
6. Disk backup protects data from loss if NAS goes down.

Wireless

continued from page 41

partial refund, "the capital markets for entities ... engaged in the provision of wireless telecommunications services, as well as other telecom services, has continued to decline rapidly."

The proposal says that troubling financial circumstances have led to difficulties in accessing capital.

Tom Wheeler, CEO of the Cellular Telecommunications & Internet Association, says relieving the industry's $16 billion obligation would provide much-needed relief.

"Chairman [Michael] Powell has said previously that the wireless industry faced a severe capital crisis; this decision would do much to ease that crisis," Wheeler says.

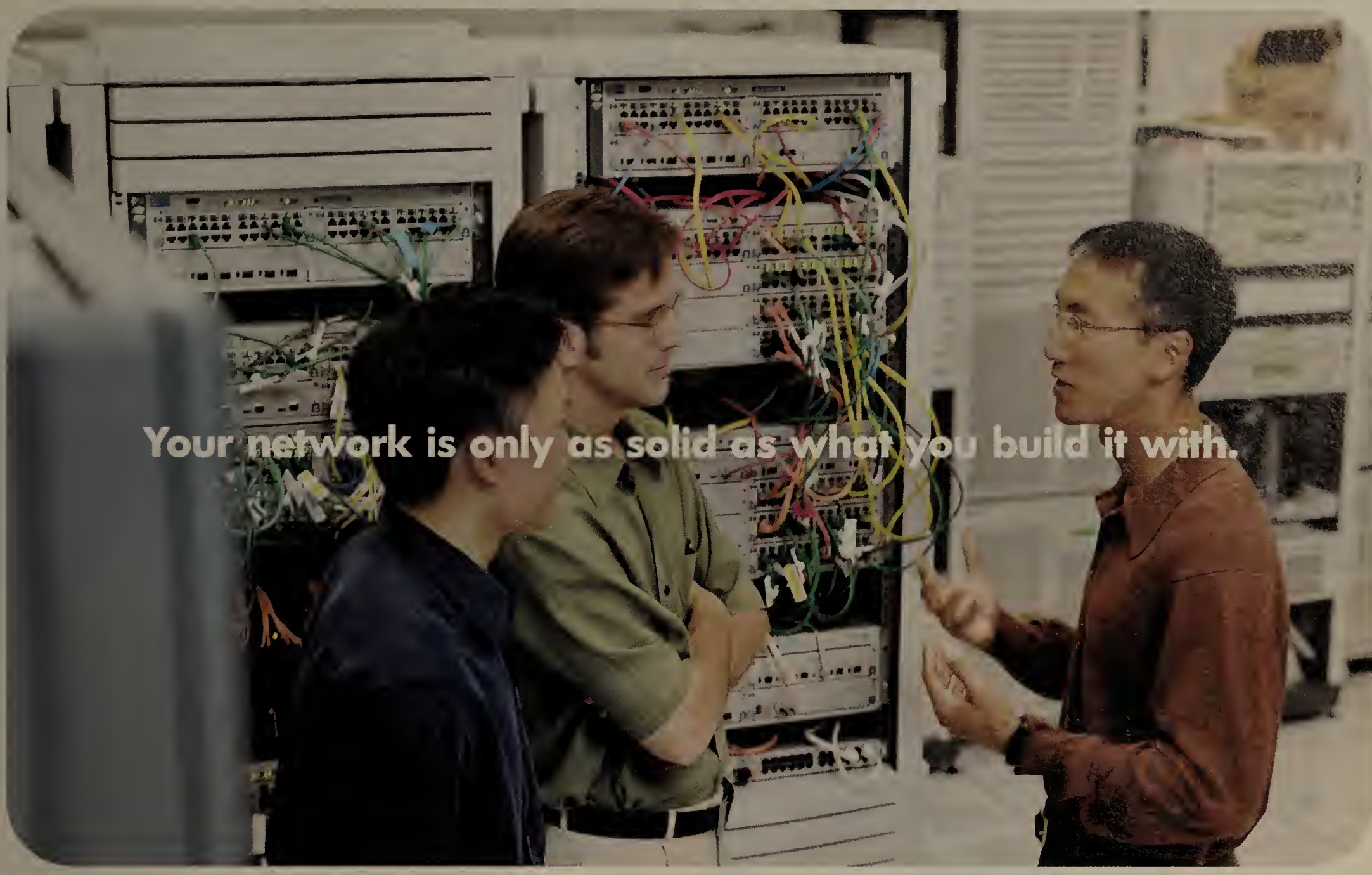
Johnston and Blau are correspondents with the IDG News Service. Network World *Senior Editor Denise Pappalardo contributed to this story.*

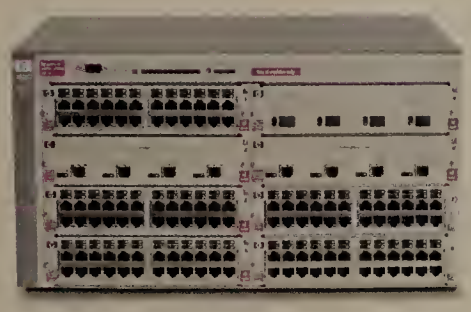


More online!

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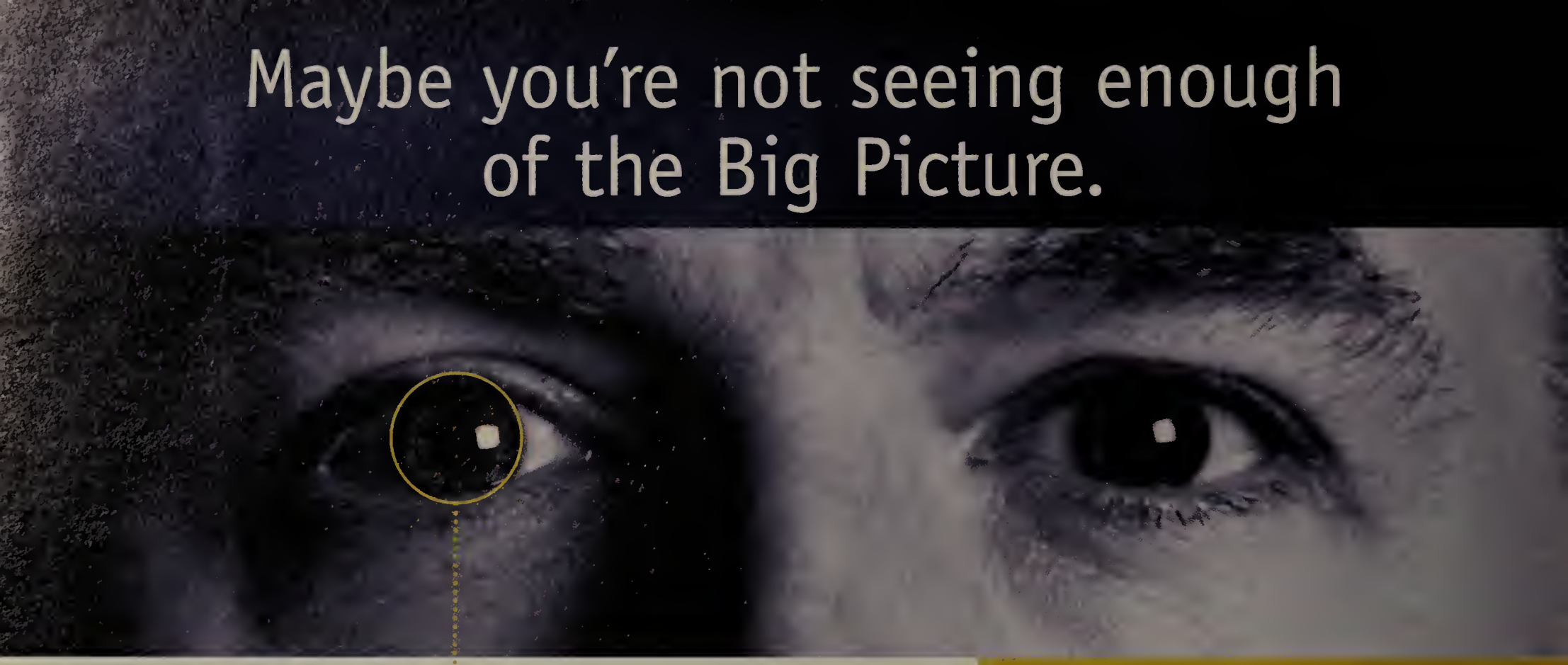
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■ SERVICE PROVIDER DEVELOPMENTS AT THE JUNCTURE BETWEEN THE ENTERPRISE AND THE NEW PUBLIC NETWORK

Optical players target metro area

■ BY JIM DUFFY

DALLAS — Despite the downturn in the telecom industry, some leading vendors are attempting to hit the few hot spots in the market with products designed to convince carriers of the revenue and cost-savings potential inherent in new investments.

Cisco and Nortel unveiled two such offerings at a downcast National Fiber Optic Engineers Conference 2002 last week. The companies rolled out enhancements and extensions to their portfolios for metropolitan-area SONET networks, one of the flickering stars in a telecom constellation that's gone dim over the past 18 months.

Cisco announced a SONET grooming switch described as a "bigger brother" to its popular ONS 15454 metropolitan transport system. The new ONS 15600 is designed for high-density aggregation switching of SONET/SDH traffic collected from multiple ONS 15454 rings.

A key feature of the ONS 15600 is its ability to groom traffic at the 52M bit/sec STS-1 level, which makes more efficient use of bandwidth by packing SONET rings with more traffic.

Meanwhile, Nortel added Gigabit Ethernet service interfaces to its OPTera Connect DX SONET/SDH switch. The dual-port Gigabit Ethernet interfaces let the DX support 32 ports per bay for Ethernet-over-SONET aggregation and switching in the metropolitan core.

Nortel says the DX enhancements will help position the switch away from its traditional niche in the depressed long-haul market — where the fiber/bandwidth glut is most prevalent — and into the metropolitan network.

"The metro area is the hot area," says Deb Mielke, principal at Trelliage Network Strategies. "It's certainly not long-haul right now."

Cisco says the metro area just got hotter with the introduction of the 15600. The STS-1 switch combines the functions of a SONET add/drop multiplexer (ADM) with an optical cross-connect, says Dave Lively, senior manager of optical strategies at Cisco. This helps service providers save money by eliminating the need for multiple ADMs at the core central office to aggregate rings from the edge, he says.

The 15600 supports 128 OC-48 interfaces and 320G bit/sec of switching capacity per shelf. Three shelves can fit into one telephone company rack.

Sixty-four protected rings can be configured with the switch. For SONET, it supports unidirectional path switched ring and bidirectional line switched ring configurations.

Lively says that through some Cisco innovation in cooling, each slot in the 15600 is 160G bit/sec-capable, meaning a shelf can achieve a total system throughput of 1.28 terabit/sec, or 4 terabit/sec per rack. These same innovations let the 15600 achieve restoration times of 15 msec to 25 msec, vs. SONET's 50 msec restoral, Lively says.

The 15600 is optimized for existing SONET/SDH investments that support revenue generation from circuit-based TDM traffic, Lively says.

The 15600 is in trials at US Signal and Looking Glass Networks, and Lively says Cisco is in discussion with regional Bell operating companies and incumbent local exchange carriers (ILEC) on some possible 15600 opportunities in their networks.

Analysts say these carriers might listen.

"It fills a gap," Mielke says. "They needed a box to work in between metro concentration points, to concentrate big metro systems for the ILECs and the bigger guys. That's what this does."

Lively says the 15600 will compete most directly with digital and optical cross connects from vendors such as Ciena and Nortel. Some observers say it will compete aggressively with Ciena's CoreDirector CI.

It also might bump up against Nortel's DX, which gained optical Ethernet capabilities with the addition of the Gigabit Ethernet interfaces. These enhancements, combined with the DX's existing integration of SONET/SDH ADM, cross-connect and dense wavelength division multiplexing capabilities, can save service providers 45% to 55% in capital and operational expenditures, respectively, Nortel says.

"Carriers are targeting Ethernet services as a growth opportunity," says Sterling Perrin, an analyst at IDC. "I wouldn't expect that [the DX] is going to be an Ethernet box, by and large, but there are carriers that are going to deploy some Ethernet functionality off of it. And a lot of carriers are going to at least want that kind of a road map there." ■

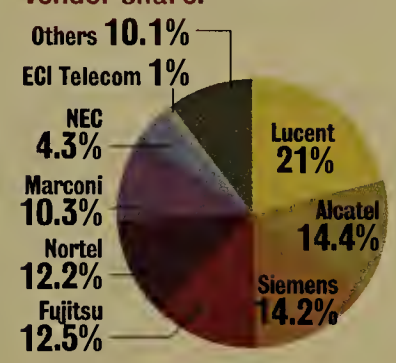
Market snapshot

Nortel's and Cisco's positions in SONET add/drop multiplexing (ADM) and multiservice transport.

SONET/SDH ADMs, Q2 2002

Worldwide revenue: $903.5 million

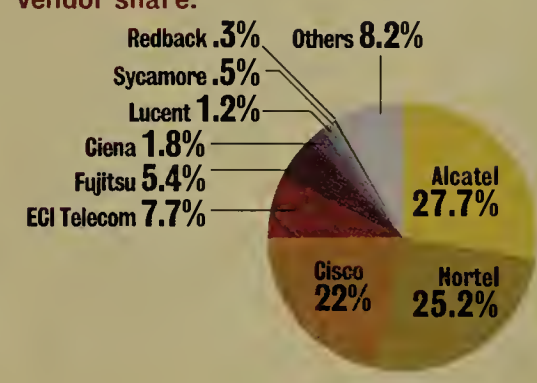
Vendor share:



SONET Multiservice platforms, Q2 2002

Worldwide revenue: $336.3 million

Vendor share:



SOURCE: DELL'ORO GROUP

Short Takes

■ **Santera Systems** last week announced that its flagship Class 5 switching product has completed the **Telcordia Operations Systems Modifications for the Integration of Network Elements** Services process. By completing the Telcordia OSMINE Services process, Santera's SanteraOne product can integrate into the regional Bell operating companies' customer service order/switch provisioning and monitoring/troubleshooting systems.

Cisco pumps up router performance

■ BY JIM DUFFY

SAN JOSE — Cisco last week unveiled products designed to boost the performance of its routers and enhance the management of Cisco-built networks.

The company rolled out a processor for its 7200-series router that more than doubles the processing power of the line and yields performance of up to 1 million packet/sec. Cisco also announced three software modules for its Internet operations support system (OSS) suite designed to let service providers activate services faster, and enhance traffic monitoring and accounting.

The new processing engine for the 7200 series is called the Network Processing Engine G1 (NPE-G1). It is a 700MHz Broadcom BCM1250 processor module that slips into the CPU slot of the 7200, and can be installed in the field as an incremental upgrade to the 7200 VXR chassis.

The NPE-G1 provides a 140% increase in processing power over the previous generation NPE-400. The horsepower of the NPE-G1 will enable service providers to deploy the 7200 for high-performance security services, bandwidth and traffic management, converged voice, video and data, Multi-protocol Label Switching (MPLS) and IPv6 applications, Cisco says.

The NPE-G1 also doubles the amount of dynamic random-access memory on the 7200, up to 1G byte. This lets the 7200 support more routing tables and access control lists.

The NPE-G1 also offers three built-in 10/100/1000M bit/sec Ethernet ports for

See Cisco, page 46

Q A


GLENN JOHNSON

Nortel vet takes dive into rough VC waters

Anil Khatod brings a unique perspective to his new job as a venture capitalist at Atlas Venture: about 20 years working at Nortel in numerous capacities, ranging from group president of Global Internet Solutions to chief marketing and strategy officer. His job at Atlas is twofold: help the company identify new companies that can sell into the carrier and enterprise network markets; and figure out the best direction for some of the companies already in the Atlas portfolio. He recently spoke with Network World *News Editor Bob Brown about the challenges and opportunities of investing in today's network industry.*

Investing in the telecom industry can't be a very easy job today, can it?

It is not, per se. A lot of people ask me what's hot these days, and nothing's hot. But there's always room for the right technology in just about any space. I was with engineering people from two big carriers last week listening to where they think the next pain points are in the network. That's a useful thing to do to see if we can mold existing portfolio companies to do those things or if there's a unique opportunity for new ones.

What were they saying?

For the most part, they are going to be in hibernation for the next couple of years. But they did go through their priorities and plans. For Verizon, for example, DSL remains a very top priority. There are opportunities, not necessarily for products that get delivered in six months but perhaps in a year or two.

What sort of business plans are you seeing?

I've seen surprisingly many optical business plans for the metro and long-haul [networks]. I've seen a lot of component plans, which is probably an area that has some opportunity. I've seen software and a few wireless plans. These are both in the carrier and enterprise spaces.

Where's the activity in the enterprise?

The enterprise market looks a little better than the carrier market. The focus is on making data centers more efficient. Enterprises, when it comes to wide-area networking, are looking more at Ethernet-type applications.

Are there still opportunities in optical?

I'm very cautious about optical. I cannot generalize and rule something out, because there could be something interesting in that space, but you're not likely to see us investing wholesale in any optical set of companies. There are opportunities in niches, in components and the metro side. There's not a lot of opportunity in the ultra-long-haul business.

While many of the newer carrier equipment companies have struggled, it's not like they haven't sold anything. Are we seeing any fruits of the technologies they've developed, in terms of new services?

To some degree, yes. Has it been as successful as hoped for? No. There are metro [dense wave division multiplexing] services, like from SBC Communications. Nortel had bought a company a few years back called Cambrian that has done very well with its OPTera metro products. There's definitely been a shift in the architecture underlying services offered to enterprises over the last three years.

I'm thinking you're probably not the most objective person in the world to ask about Nortel, but what's your take on that company's situation?

I'm reasonably objective. Nortel, like any major incumbent, is going through a difficult period but working to get its break-even point down dramatically. What the company has going for it is a huge customer base and solid wireless business. There's huge demand for [Code Division Multiple Access] equipment, and Nortel is one of the largest suppliers. All these incumbents are going to make it. It's hard for me to see a company with such a sizeable installed base going anywhere, though everyone can make dumb mistakes.

What's Nortel's biggest challenge?

It's not just Nortel but across the large companies. Lucent has the same issues. One, how can they break even fast enough. The business is continuously shrinking for all the suppliers and they have to cut costs fast enough to make money at a much lower volume. And two, they can't solve all their problems by cutting costs. They have to get better at capturing and keeping customers to gain market share. ■

Cisco

continued from page 45

LAN connectivity. The integral, dedicated LAN ports frees up other ports on the 7200 for bandwidth.

LAN ports are copper RJ-45 and fiber gigabit interface converters, the latter specifically for gigabit connectivity.

Separately, Cisco also announced new software support for hardware-accelerated features on its 7300 series routers, such as MPLS, MPLS VPNs and network address translation (NAT). These enhancements help position the router as an option for remote service provider point-of-presence applications, Cisco says, where MPLS, VPN and NAT services are initiated at points closest to the enterprise customer.

The NPE-G1 is available and costs $15,000. The software features for the 7300-series router are currently available.

For management, Cisco rolled out three domain managers for its Internet OSS software application suite: Mobile Wireless Center, Broadband Access Center and Packet Telephony Center. They provide element and service-level management, specifically focusing on provisioning, service-level monitoring and service-level accounting functions.

The domain managers also can be used as stand-alone applications or as subsystems, letting independent software vendors, systems integrators or customers integrate their applications and networks into existing OSS infrastructures, Cisco says.

The Mobile Wireless Center provides specific tools and services to support mobile wireless deployment, such as flow-through provisioning of Radio Access Network transport networks built on Cisco hardware.

The Broadband Access Center provides a single management system for cable, DSL, T-1, broadband aggregation and voice-over-IP (VoIP) over Ethernet access technologies.

The Packet Telephony Center provides voice network management to help accelerate packet-voice service deployment, Cisco says. It supports call agents, gateway devices and automated management, and lets VoIP networks to co-exist with the public switched telephone network, Cisco says.

The new domain managers are available now. Pricing depends on number of units and ranges from $25,000 into the millions of dollars. ■



More online!

See what progress Cisco announced for its OSS portfolio at SuperComm.

DocFinder: 2328

Performance management

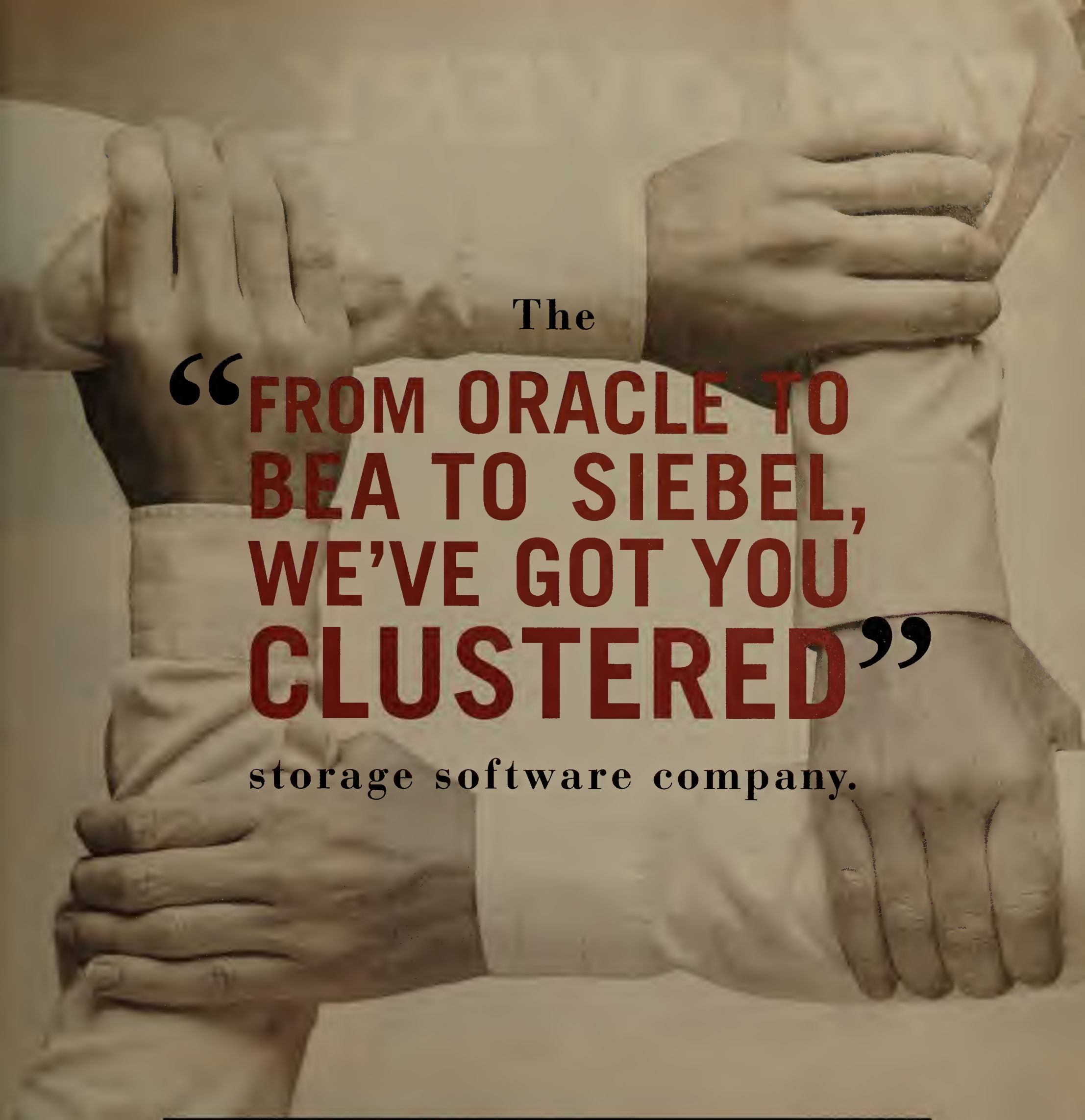
Enhancements to Cisco's 7200 router and operations support system (OSS) software ...

For the 7200:

- Network Processing Engine G1 (NPE-G1).
- Field upgrade to the 7200 VXR.
- More than doubles processing performance.
- Higher performance security, quality of service, converged voice, video and data, MPLS and IPv6 services.
- Three built-in 10/100/1000M bit/sec Ethernet ports.

For Internet OSS:

- Three domain managers: Cisco Mobile Wireless Center, Broadband Access Center and Packet Telephony Center.
- Handle provisioning, service-level monitoring and service-level accounting functions.
- Can be used as stand-alone applications or subsystems for integration into existing OSS infrastructures.



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THE GLOBAL TECHNOLOGY MARKETPLACE

Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

H.263 compresses video over IP

■ BY RAY PATALANO

Whether it's the convenience of holding face-to-face meetings globally or the value of watching remote assets from a central office locally, the potential of video over IP is growing. Physical security and public safety organizations are driving the demand to implement enhanced digital video tools, and technology now allows for migrating those tools onto a communications network.

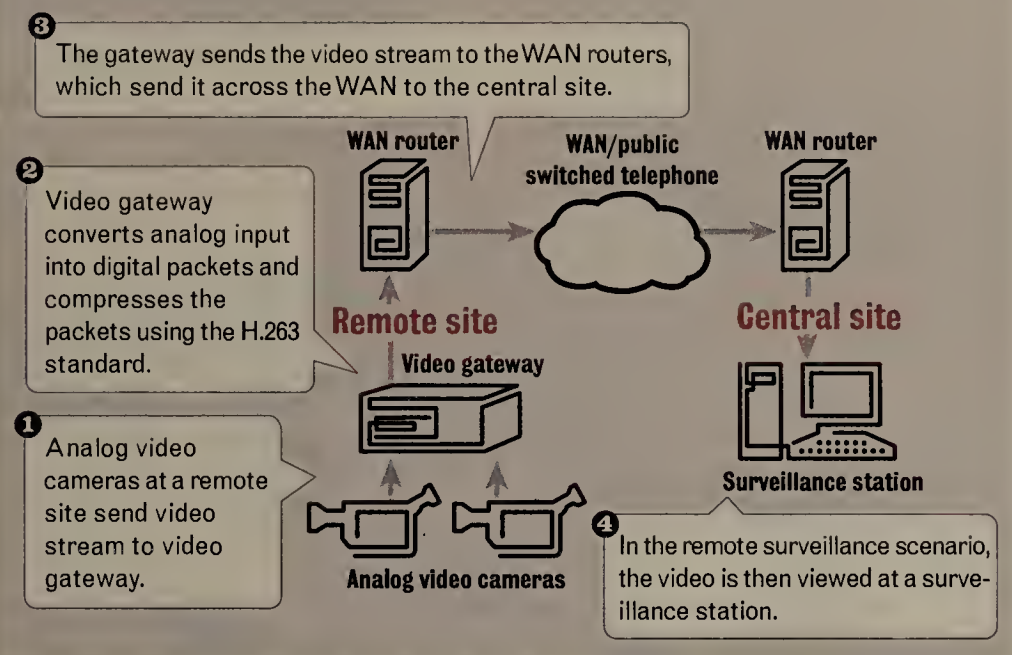
You don't need to upgrade your network to Gigabit Ethernet to transmit video over IP because video compression, specifically the H.263 standard, provides a cost-effective alternative to increased bandwidth.

In the world of video compression there are two types of choices: proprietary compression algorithms created by several manufacturers, and standards-based technologies such as H.263 and the Moving Pictures Experts Group (MPEG) family, including Motion JPEGs.

There are options in each category, although the actual application — be it security, e-learning or videoconferencing — will drive the decision. The two most popular standards-based technologies are Motion JPEG and H.263.

H.263 video compression

H.263 video compression technology lets you send high-quality video at low bandwidths.



Motion JPEG

Commonly known as MJPEG, this compression algorithm is a distant cousin of the MPEG and is commonly seen in digital video recorders. Typically, MJPEG is used in the physical security environment to translate analog video from closed circuit television cameras into a digital stream to be stored onto a hard drive.

MJPEG has the capability to send very high-quality pictures, but it requires an enormous amount of bandwidth — as much as a T-1 circuit — to produce full-motion video. MJPEG does not use interframe coding, unlike MPEG, and is easier to edit with a nonlinear editor.

However, MJPEG images are among the largest to store on a digital medium and require large amounts of disk space to meet the needs of most businesses today. It is perhaps the most inefficient coder/ decoder (codec) to use in an application such as physical security where the camera needs to be on for extended periods of time. This technology is better for applications when a "snapshot" photo is the desired outcome.

H.263 lets users scale bandwidth usage and can achieve full-motion video (30 frames per second) at speeds as low as 128K bit/sec. With its flexibility and bandwidth and storage savings, H.263 has a low total cost of ownership and provides a quick return on investment.

H.263 was developed to stream video at bandwidths as low as 20K to 24K bit/sec and was based on the H.261 codec, but as a general rule, it requires half the bandwidth to achieve the same video quality.

Originally designed as the standard for videoconferencing over ISDN, H.261 introduced features such as motion prediction and block transformation. This allowed for a smoother picture with good quality, but was limited in the amount of motion it could handle. Also, H.261 used a large amount of bandwidth (64K to 2M bytes) and was targeted primarily at circuit-switched networks.

H.263 has largely replaced H.261. As H.263 became popular because of its high-quality video at low bandwidths, the standard was annexed and updated nine times. IT managers can feel comfortable placing it on their data networks, without increasing bandwidth and storage costs, or interrupting other critical voice and data applications already running on the network.

The H.263 algorithm also can be modified by today's more savvy developers to produce better results and better compression schemes, which in turn gives end users more choices in selecting the implementation that best fits their business applications.

Patalano is director of IP Video Solutions at Vanguard Managed Solutions. He can be reached at aypatalano@vanguardms.com.

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you've got one and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@ nww.com).

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Ask Dr. Internet

By Steve Blass

In your response about using Address Resolution Protocol to find an IP address from the media access control address (www.nwfusion.com, DocFinder: 2329) — surely ARP finds the MAC address of the device with the given IP address. Reverse ARP goes the other way, but is initiated by the device with the unknown IP address, which queries a server with a MAC address to the IP address mapping table, which wouldn't work for us. How do you use ARP to query a host for its IP address, addressing it by its MAC address?

From a PC or a Unix command you can use the command arp -a to list the contents of the ARP cache. Pipe that to a filter that matches on the MAC address you're looking for and then split out the assigned IP address. This is not a method for using ARP to directly query the device; it is a method for using the artifacts that the protocol traffic leaves behind to track down the device.

Even better, use the iproxy package available at www.vergenet.net/linux/iproxy/ that shows how to build broadcast listening services useful for automatic device configuration, and how to provide connection-oriented TCP services using connectionless UDP broadcast and multicast protocols.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet @changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs



Cookies get weird

It turns out that we misunderstood the Microsoft Knowledge Base article we quoted in the first of our recent cookie columns (www.nwfusion.com,DocFinder: 2331).

We wrote that "2038 is often the maximum year used [as the expiration year for a cookie] for a really dumb reason: Active Server Pages in Microsoft Internet Information Server 3.0 and 4.0 and Microsoft Internet Information Services 5.0 have a small bug that causes an error."

Among other readers, longtime correspondent and supplier of jokes, Phil Daley, dropped us a note: "You make this sound like a Windows problem, but it is actually a Unix problem — time_t is an int and has been since Unix was invented. That's why they started the clock on 1/1/70."

Indeed. Here's the logic: The variable time_t, which records the number of seconds elapsed, is considered to have been zero at 00:00:00 on 01/01/70. This variable is a long "int" — an integer represented by four bytes divided into a value of 31 bits with one sign bit.

This means the highest value that time_t can reach before it becomes zero again is 2,147,483,648 seconds or 24,855.1348 days or roughly 68 years. This equates to 3:14:07 a.m. on Jan. 19, 2038.

So it wasn't a Microsoft programming snafu as we supposed (which seemed a likely conclusion given Microsoft's wording in the Knowledge Base article) — we simply got it wrong. We will retire to a dark corner and do the sackcloth and ashes thing.

Another reader enquired: "Concerning 'Cookie crumbs', I have a question. What more information would one need that cannot be found in the Local Settings\Temporary Internet Files?"

More information? The answer depends what you want more information about. If we're talking about cookies then, for example, under Internet Explorer on Windows XP cookies are kept in the folder C:\Documents and Settings\USERNAME\Cookies as we discussed in the previous Gearhead cookie column (DocFinder: 2331).

If you examine these cookies with the tool we discussed last week (IECookies View from Nirsoft), you can see where PC users have been browsing, or for that matter, where you have been browsing. If you want to keep your browsing habits private, then you should do some deleting. While removing cookies gets rid of one log of your browsing trail — there are more sources. We'll come back to that topic later.

And note that if you delete any or all cookies, you might be disabling automatic logon to registered sites that use a cookie to authenticate you. Of course a more paranoid viewpoint is that this is a good thing because, if a miscreant makes off with your PC or simply copies your cookies, he could access any server you were set up to automatically log on to.

Now as a Web site owner/manager/lackey you should think about how you would support autologon using cookies. If significant financial or privacy risk is involved and you absolutely must have a cookie-based autologon, check the domain or IP subnet location of the user presenting the cookie. If that location data changes, then ask for the user to authenticate.

You also should check the browser identity: Valid users aren't likely to suddenly change from XP to 98 or from OSX to Windows 2000 without authenticating themselves at least once in the normal manner.

Anyway, back to the question. XP uses the directory C:\Documents and Settings\USERNAME\Local Settings\Temporary Internet Files that the reader referred to for temporary storage of Web content.

In here you find HTML documents, Flash animations, GIF and JPEG images — a copy of everything that the browser has used to build every Web page it has retrieved. You also will find that all the cookies you can see in the folder C:\Documents and Settings\USERNAME\Cookies also are here!

This is more nefarious Microsoft systems programming sleight-of-hand. What you see in these directories are not all real files — some are links that are derived from the contents of index files and presented as if they are files.

If you use Windows Explorer and double click on, say, a JPEG image in the Temporary Internet Files subdirectory, a warning will be displayed saying "Running a system command on this item might be unsafe. Do you wish to continue?" At this point you may be wondering what the heck is going on. "What system command?"

Go to the header bar of the right pane and right click. In the context menu select "Internet Address" and voila! Each item is associated with the URL it was downloaded from. Double clicking won't launch the program for the associated file type, it will load Internet Explorer. This is not your average subdirectory!

It gets better, but you'll have to wait until next week. Weird links to gearhead@gibbs.com.



CoolTools

Quick takes on high-tech toys

By Keith Shaw

HP adds high-end graphics card to notebook

Hewlett-Packard recently announced its Compaq Presario 2800 notebook, which includes high-end graphics and video features. The notebook comes with ATI's Mobility Radeon 9000 graphics card, which will aid users who want to integrate video into presentation software without slowing the notebook's performance. HP says it also improved power management to extend battery life.



The Presario 2800 is designed to integrate video in presentations without slowing down the performance.

The notebook weighs less than 6 pounds, includes a 1.7-GHz mobile Pentium 4-M processor, and has a 30G-byte hard drive, 512M bytes of dual data rate, synchronous dynamic random-access memory, a 15-inch SXGA+ display, an 8x DVD/CD-RW combination drive and USB 2.0 support. Integrated wireless options also are available. The pricing for this configuration starts at $2,248. It should be available by the end of this month, HP says.

Avocent combines analog KVM with digital KVM

Avocent has announced its AutoView 1000R and 2000R, new all-in-one keyboard, video and mouse switches that combine analog connections and Avocent's digital KVM via IP switching onto one switch. Avocent's AVWorks software is bundled with each switch at no extra charge.

The company says its new switches are designed for companies that need to consolidate control of multiple servers and extend secure access to users outside the data center or in remote offices. The 1000R and 2000R are 16-port rack-mounted switches.

Each switch supports PS/2, Sun or USB ports via an AVRIQ interface. The 1000R costs $3,200, and the 2000R costs $4,200. Go to www.avocent.com for more details.



Avocent's new switches let companies consolidate control of multiple servers and extend secure access to remote users.

Pocketec ships 60G-byte portable hard drive

The size of portable storage keeps amazing me. Just when you thought you'd reached the limit, another company increases the space.

Pocketec recently announced a 60G-byte version of its Pockey-DataStor (it already produces 20G-, 30G- and 40G-byte versions). The DataStor measures 5 by 3 by 0.5 inches, and requires no power supplies (it draws power from the USB port). The drive is USB 1.1- and USB 2.0-compliant, and offers transfer rates of 480M bit/sec with USB 2.0.

It is self-installing under Windows 2000, ME and XP. Drivers are included for Windows 98 users. The drive also is compatible with Macintosh, Linux and DOS.

Priced at $400, it is available through retailers. Custom-colored cases are available from Pocketec at www.pock etec.net.



The Orinoco AP-2000 comes with VLAN support and automatic channel selection.

Proxim ships dual-mode access point

Proxim is now shipping its Orinoco 5-GHz kit for the dual-slot Orinoco AP-2000 to give customers an upgrade to 802.11a wireless LANs. The company also announced Release 2.0 software that aims to ease installation.

The kit includes an 802.11a CardBus card that inserts into one of the slots of any AP-2000 access point with attached high-gain dual-diversity antennas, the company says. The software includes virtual LAN support, ultra high-density cell size, and automatic channel-selection features. The VLAN support will enable simultaneous operation of two independent wireless networks on the same access point. The VLAN function works with existing VLAN networks.

The AP-2000 costs $900, and the 5-GHz kit costs $250. For more information, go to www.proxim.com.

Shaw can be reached at kshaw@nww.com.

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opinions!



EDITORIAL

John Dix

A cage for the viruses that get in

Although the recent NetWorld+Interop show in Atlanta was unusually quiet, one company that made a splash was SentryBay, a newcomer offering software designed to prevent the spread of e-mail viruses.

The start-up says the world needs its product because, even though most organizations use antivirus software, we all know that some viruses and worms always manage to get in. When they do, SentryBay's ViraLock is designed to prevent them from getting back out, saving you the embarrassment of infecting customers, partners and colleagues.

ViraLock achieves this by encrypting e-mail addresses kept in Microsoft Outlook and Outlook Express (running on Windows 98, ME, NT, 2000 and XP). SentryBay plans to add versions for Netscape, Eudora, Pegasus Mail and Juno.

Most viruses that use e-mail to propagate arrive with their own SMTP engine, harvest your addresses and start to blast away. Because ViraLock encrypts mail addresses, an infected desktop will start generating nondeliverable messages when a virus tries to send mail, alerting users to the fact that something nefarious is going on.

Users can decrypt addresses by entering a password, but otherwise ViraLock simply unscrambles them in background mode as the client mail program sends messages. Viruses that try to use the client program to propagate will run into another roadblock: ViraLock blocks distribution of all messages with potentially problematic attachments. Attachments that are known to be harmless, such as GIFs and JPEGs, are allowed through. But attachments with extensions such as .EXE, .DLL and .VBE require the user to enter a password before they can be forwarded.

Attachments that fall in the middle ground — neither trusted nor known to be dangerous — require user confirmation before they are sent.

While clever and potentially valuable, one wonders if companies will be inclined to use software that mucks with their core mail systems. I imagine that would be a deal breaker for many.

And the other big question is whether companies will be willing to let users encrypt addresses using personally managed keys. That could lead to some interesting help-desk calls.

But if the thought of passing viruses on to key business partners gives you the willies, ViraLock might be worth a look. The downloadable desktop product will be available Oct. 15 for $20 (volume discounts available), and SentryBay says the server version will be out later this year and priced in the mid-$20 range.

— John Dix
Editor in chief
jdix@nww.com

Cleaning up scumware

After reading the story "Critics decry spread of 'scumware' on the Web" (www.nwfusion.com, DocFinder: 2324), I found it comical that on downloading the recommended removal utility Ad-aware I was prompted to also install Gator software. I just thought I would share this little bit of irony.

Michael Bobo
Birmingham, Ala.

Regarding "Critics decry spread of 'scumware' on the Web": Simple, cheap, server appliance software lets service providers charge content providers for access to subscriber display real estate. As was pointed out in the story, no modification or violation of the content provider's copyrighted content takes place. Whether the original content is displayed full-screen or in a single pixel depends on how much the content provider or subscriber is willing to pay.

Millions of AOL subscribers know the value of leasing screen real estate and interpolating highly granular demographic data on behalf of content providers. Imagine what the Internet will be like when every access service provider and wireless provider can cheaply and scalably replicate the business model that made AOL so successful, right down to keyword-enabling the browser address input, without the need for plug-ins, special browser software or any client modification.

In the new order of pervasive Internet availability, whoever owns the pipes also controls the display real estate, and can charge accordingly. The display begins in the access provider's network — scumware is a short-lived phenomenon. When service providers look past hauling bits and figure out how much power they have over the presentation of Internet content, it will mark the emergence of a new era. And if content providers want access to subscribers, they'll have to have the highest bid.

Paul Frommeyer
Director
NetDestiny Systems
Austin, Texas

E-mail letters to jdix@nww.com or send them to John Dix, Editor In Chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

RBOCs and MPLS

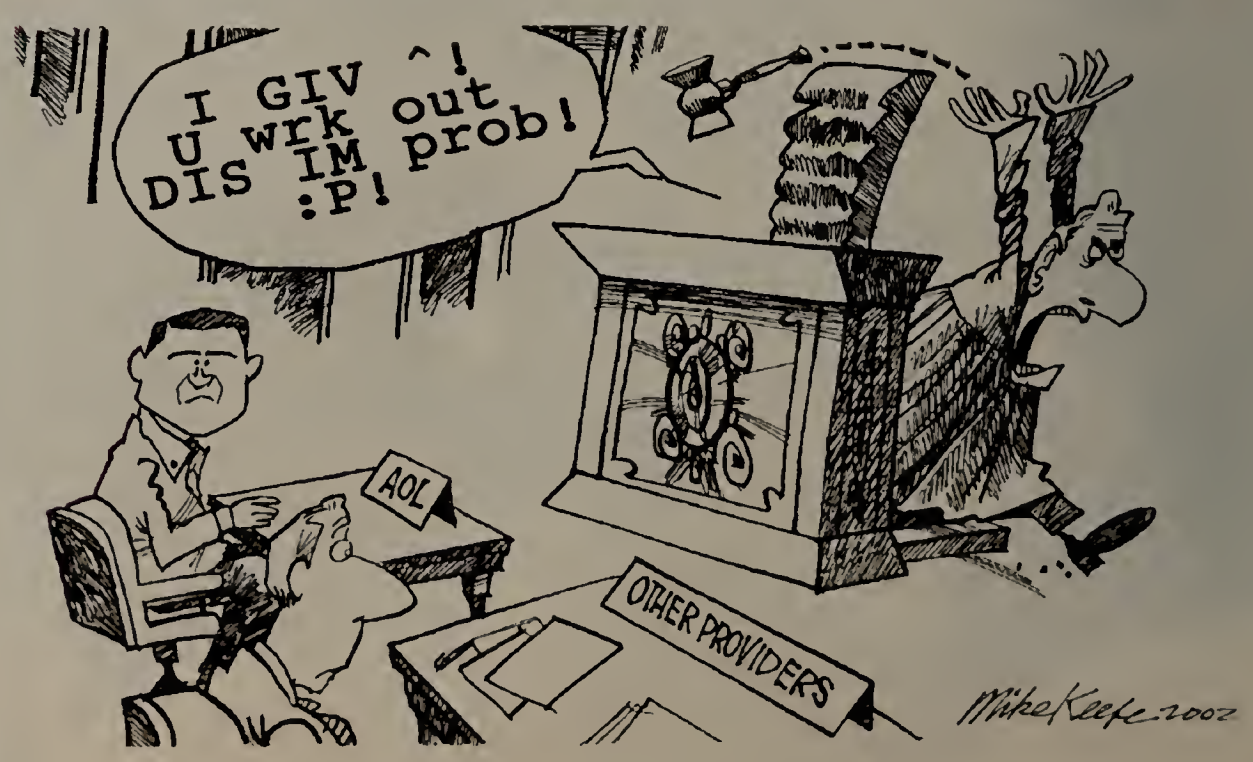
As always, Thomas Nolle has gone straight to the heart of current issues in the industry ("RBOCs, ATM and MPLS," DocFinder: 2325). However, to put forth the statement that "the vendors won't let [the RBOCs implement MPLS]" as explanation for the RBOCs' lack of progress toward a label-switching architecture is a very contentious position.

Vendors have every reason to go to a label-switching, packet-based architecture. The resource consumption inherent in cell-based transport, even with the predictable increases in processing capacity, will continue to impose an unacceptable (and perhaps irresolvable) burden on the edge device, where the function of performing the deconstruction/reconstruction task familiar in ATM networks resides. Given the goal of the provider — to move data most efficiently and economically from one point to another — spending expensive processing resources on translation between packet and cell prevents those same resources from transferring data.

I suggest the RBOCs' reluctance could be financial. The equipment that comprises the legacy ATM infrastructure has been fully amortized, and thus revenues generated are at their maximum value. The RBOCs have no incentive to make new capital expenditures until some ancillary factor forces their adoption of a new architecture.

Robert Downing
Senior marketing manager
Larscom
Milpitas, Calif.

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TOTALLY UNPLUGGED

Ira Brodsky

Enlisting networks to fight terror

When terrorists struck our shores, we finally understood our national security needs had changed. Conventional military hardware — tanks and bombers — is still required to fight hostile states. But detecting and thwarting terrorists operating in small cells demands an entirely new set of tools.

Our government has not done enough to acquire these tools.

We've created a new bureaucracy, formed committees and issued reports. We should be rallying America's high-tech entrepreneurs to develop and produce the intelligent devices, ubiquitous networks and powerful software needed to stop terrorists before they strike again.

Networks are crucial to defeating terrorism. Overseas, we are using networks to spy on terrorist groups, conduct raids and manage battlefield operations. We need to do more at home, employing networks to spot weapons of mass destruction, monitor hazardous shipments and detect suspicious patterns of activity.

One of our biggest fears is that terrorists will strike a major population center using a "dirty bomb" or even a suitcase nuclear weapon. Contrary to what some experts say, such attacks can be prevented. We need to ensure all border crossings are fully equipped to detect radioactive materials, lead shielding and conventional explosives. But what if terrorists manage to sneak materials for assembling a suitcase nuclear weapon or dirty bomb into the country anyway? We must build networks of radiation sensors around our major cities, nuclear power plants and military bases.

Another concern is that terrorists might hijack a fuel truck, drive it to a target and blow it up. The technology to prevent this is available now. Mobile satellite networks can track vehicles transporting hazardous materials, remotely disabling their engines if they travel outside their prescribed routes. Regulations and tax incentives should be put in place to ensure all tank truck operators implement such capabilities.

Networks also can help prevent legitimate shipments from being stolen. Freight containers can be equipped with "active" radio frequency identification tags that transmit alerts when containers are opened or removed from flatbed trucks or rail cars.

Some types of attacks, particularly those involving biological agents, are most effective when carried out surreptitiously. Networks can be used to spot disease patterns and detect suspicious purchases that might lead us to terrorists producing chemical weapons or explosives.

We know terrorists use the Internet to raise money and spread propaganda. But we are not obligated to let them use our communications infrastructure to plan and conduct attacks. With the right technology and legal safeguards, we can eavesdrop on terrorists without sacrificing legitimate rights and privacy. While terrorists have proved they can borrow our technology to commit evil, we have an overwhelming technological advantage — if only we can muster the will to fully exploit it.

Brodsky is president of Datacomm Research in Chesterfield, Mo. He can be reached at ibrodsky@datacommresearch.com.

Detecting and thwarting terrorists operating in small cells demands an entirely new set of tools.



REALITY CHECK

Thomas Nolle

FCC fails at regulatory reform

Early this year, it looked like Chairman Michael Powell's Federal Communications Commission was on track to make substantive changes to the way the regional Bell operating companies were regulated, with the goal of jump-starting DSL deployment and overall modernization of the public network. Given that the RBOCs' competitors are pretty much dead or dying, this move seemed the only hope for an industry in a terrible slump.

Now, as we enter fall, it looks like Powell got cold feet. When WorldCom tumbled into Chapter 11, he apparently decided that pro-RBOC regulatory shifts might further complicate WorldCom's already murky future prospects and compromise AT&T and Sprint as well. At any rate, the FCC has been silent this summer, and there's been no real progress in broadband modernization.

Suppose that Powell is responding to fears of later being accused of driving the interexchange carriers (IXC) out of business. Two questions then arise. First, is FCC foot-dragging going to have a negative affect on the market in 2002? Second, would holding back on reform even be helpful to the IXCs, and WorldCom in particular?

The sad truth is that we've probably already lost as much momentum on broadband modernization as we're going to lose. The equipment markets for this fall could have been rejuvenated by carrier investment in broadband comsumer services had the FCC taken even basic steps to give the RBOCs more incentive to invest. These would have included declaring the Internet an information service and offering the RBOCs immunity from having to unbundle elements of DSL infrastructure. Even if the FCC ordered those minimal changes — and more — today, there would be no hope of saving this year's market.

What's going to happen now is that the RBOCs will chase the only new-to-them revenue sources remaining: long-distance voice and data. They'll start pursuing the business voice/data market on a large scale next year, which will further erode IXC profits.

That leads us to the question of whether the FCC's stonewalling will even help WorldCom and the IXCs. How is a market in which RBOCs try to suck the lifeblood of IXC financial stability less likely to threaten the IXCs than a market in which the RBOCs invest in developing new consumer broadband services? Could it be that this is politics again? Pass a law or issue an order that can be made to look like it's threatening WorldCom or its cousins in the IXC space, and you're accountable. Do nothing and threaten their stability even more, and you can just join the other hand-wringers who will decry the industry's sad position in 2003 or 2004, when all the IXCs are visibly unstable.

It's clear that the good of the industry has gotten mired in a combination of partisan politics and lobbying. This is the last soft-money year, isn't it? Could it be that politicians are reluctant to move on regulatory reform before all the dollars are sucked out of contributor pockets? But even if that's so, the FCC should be above all this.

IXC margins are reported to the FCC, and they've shrunk consistently since 1996. Where was the FCC? The current revenue crunch has been predictable for anyone who wants to read the record, and the consequences just as predictable. Falling margins have converted the stalwart RBOCs into next-to-junk debt on Wall Street. How can an industry of financial weaklings step up and change the face of telecommunications?

This financial stress on the major carriers has resulted not from overall economic conditions, but from lack of insight among the regulators, or lack of determination to do the right thing. WorldCom, AT&T and Sprint are now going to be forced to focus on protecting their current revenues — revenues the RBOCs are being forced to attack. Infrastructure investment will focus more on traditional services and equipment than it should, and the age of new consumer and enterprise broadband services will be deferred until after 2005.

I'm disappointed in Washington in general, but in Powell and his FCC in particular. For all their professed zeal to deregulate the RBOCs and ignite the market, they've effectively continued the policies of the past, and we're now facing real hurt because of their mistakes.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at tnolle@cimi corp.com.

It's clear that the good of the industry has gotten mired in a combination of partisan politics and lobbying.



SUPPLIER SPEND SPIRALING OUT OF CONTROL? NOT ON OUR WATCH.

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THE Buzz





Technology style. If only choosing the right technology for your company was as easy as picking a hairstyle. Imagine telling a vendor, "Let me try that new instant-messaging server this time around, that software I bought from you last month just isn't doing it for me. Takes too much time to boot up in the morning."

Of course, that idea is as outrageous as the notion of fashioning your hair into a beehive or pompadour for a day at the data center. Truth is, you need to stay hip to the latest technology trends without going to extremes. Tomorrow's coolest networks will be highly scalable, extendable, resilient and intelligent. Your goals should be to identify technologies that will get your network to that ideal and to plot a migration path to them.

Investigating budding intrusion-prevention tools would be worthwhile, for example. Perhaps you'll even want to push your primary security vendors to get with the buzz. These tools, mostly from start-ups, need grooming, but they're a great start toward the goal of staving off hackers.

Likewise, watch what vendors are up to regarding Speech Application Language Tags (SALT), an emerging technology that supports spoken access to Web information. SALT could come in handy for Web-based self-service and call-center applications.

Your choices regarding these and myriad other buzzy technologies will determine whether your network stays strictly utilitarian or takes on the resiliency and intelligence that make it an enviously competitive tool.

— Beth Schultz, Editor, Signature Series, *bschultz@nww.com*

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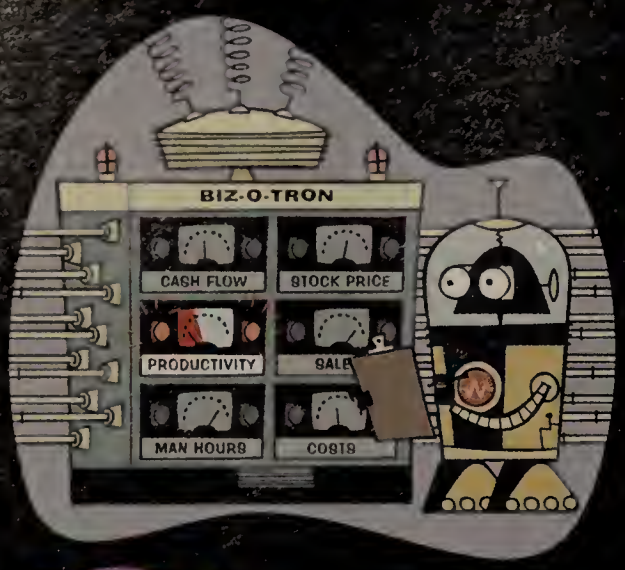
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Never-fail business ser



Business impact management software takes network management to a new level by assuring service levels for business objectives.

By Denise Dubie

When a persistent application failure threatened to ruin a business partnership for Zurich Life, IT executive Timothy Hagn turned to a new type of software that manages business services across networks, systems, servers, applications and databases. Now when that application starts going bonkers, Hagn can straighten it out before the business partner knows anything is amiss.

When Hagn bought Hewlett-Packard's OpenView Service Navigator to solve the business problem in early 2001, the vice president of IT operations and engineering at Zurich Life didn't realize he was partaking in what has become one of the hottest trends to hit the network management industry. HP's software is among a growing number of tools that fall under the new business impact management (BIM) category. These tools come by their name because they let IT managers incorporate business objectives into their network management software.

Because BIM can ease communication of business needs to IT staff, it promises to help improve a company's partner and customer relationships, and increase employee productivity. BIM proponents even go so far as to say the software can save and make money for companies.

Yet, like anything new, BIM needs polishing. While BIM software can correlate the performance of many elements so they can be managed as a single business service, it can cost a lot and take considerable hands-on configuration to prove its worth in specific business environments.

Still, for Hagn, tracking service levels across what he calls the silos of network management — networks, systems, servers, applications and databases — has become a business strategy. "It's a move from reacting to problems to proactively controlling how we deliver service," he says.

IT managers at Virginia Polytechnic Institute and State University in Blacksburg say the same. Since deploying Smarts' InCharge Application Services Manager in May 2001, the IT team there has stopped chasing down "red icons" and started "intelligently isolating problems," says Carl Harris, director of network engineering and operations at Virginia Tech.

"In the past, we found out about problems and who was affected in sort of an ad hoc fashion; there was a lot of guessing and a lot of phone calls," Harris says.

"Now we can tell who in terms of applications and what in terms of servers are affected by an outage or device failure."

What's more, the BIM tool has helped the IT team increase its services to students and faculty while maintaining its current staff size.

The short and sweet of it is, Smarts can spot a problem with amazing accuracy, and we didn't have to hire another systems administrator to use it," says Brian Jones, manager of network engineering and operations at the school.

Beyond technology metrics

As Hagn and the team at Virginia Tech will attest, BIM can aggregate and correlate performance data such as response time across network devices, systems, databases, and Web and applications servers. And unlike its first cousin, service-level management software (see related story, page 58), a BIM tool can manage across these elements in real time and monitor hardware and software for more than technology metrics.

The earliest BIM product became available in 1997, when Managed Objects released its Formula software as a "business services management" tool. But the BIM buzz really didn't start until this April, when IBM's Tivoli software division coined the phrase with the release of its Service Level Analyzer product.

BIM tools have become a vendor focus this year in the down economy. Companies are concentrating on return on investment and total cost of ownership of the IT infrastructure in response to internal corporate pressures.

"BIM tools have picked up in popularity more recently because the business side of the house is demanding it," says Glenn O'Donnell, a research director with Meta Group.

More than just software

While features vary among vendors, BIM software is an add-on to a network management system. Network managers install the software on a dedicated server usually adjacent to the network management server. Then IT creates models of the business-critical services, such as e-mail, order entry and customer-facing applications, it wants to manage. These models are virtual topologies of all elements, including user desktops, an application must touch to fulfill a user request.

BIM isn't only about software. IT staff must meet with business leaders to get an idea of how they want to see the network perform. For example, executives at an online trading company might want its application to simultaneously support 100 trades per second. With that request in mind, the IT department then would have to configure the network and prioritize traffic to deliver on that metric. The process would require several components working in concert to deliver the requested service level.

Once the software, loaded with those business requirements, is fully installed BIM tools collect performance data from hardware devices and other software tools in tracking services across

BIM TOOLS

Ask this...

... of your BIM tool vendors

- Does the software include modeling technology that will let me create a topological map of the elements, including user desktops, that a business process uses to complete its service delivery?
- How long will it take to get the software installed and providing results?
- How much manual input will be required to get the software to work properly on my enterprise network?
- How open is the software architecture?

vices

multiple network components.

The tools also can be configured to receive filtered events and alerts from the network management system based on service levels network managers wish to meet.

BIM software can then aggregate the data and correlate it against predefined (either out-of-the-box by the vendor or customized by users) performance requirements to spot behavior abnormalities. When a potential problem arises, the software can alert network managers of the probable source and then IT staff can take action to prevent the problem from affecting business services or users.

Onus on the user

A good BIM product will have hooks into many third-party hardware devices and software



BIM software stopped ad-hoc problem solving for Carl Harris, left, and Brian Jones, IT managers at Virginia Tech.

SETH GITNER/MPG

A barrel of BIM products

Here's a sampling of business impact management products.

Vendor	Product
BMC Software	Patrol for Service Level Management
Entuity	Eye of the Storm
Hewlett-Packard	OpenView Service Navigator
IBM Tivoli	Service Level Analyzer
Managed Objects	Formula; Service Level Analyzer
Micromuse	Netcool/SLA Manager
Panacya	bAware
Smarts	InCharge Application Services Manager

applications so it can pull performance data from multiple sources, but vendors obviously cannot include data specific to a customer's line of business. Users must be willing to define the services that are to be managed. They must then put into the software the knowledge of how their specific network devices and applications perform.

"The tool is only as smart as you and your applications team are," Zurich Life's Hagn says. "The information is already there; you have to decide how to carve it to best support your business services."

Yet the team at Virginia Tech report it only took an afternoon of meetings with business managers to map out objectives and a few days of software configuration to get Smarts' software up and monitoring the school's business services. "The physical installation was incredibly easy, and the software discovered our entire network in less than three hours," Jones says.

Virginia Tech might be the exception, according to some industry watchers. In truth, the amount of manual configuration required makes others leery of empty out-of-the-box feature promises.

Jean-Pierre Garbani, a director with Giga Information Group, says that while available BIM products are useful, they cannot solve some inherent problems in managing business services with technology. "It's difficult to translate business objectives into anything that is measurable on an infrastructure," he says.

When vendors and IT departments find a way to convert objectives passed along from business units into understandable and measurable technology metrics, network managers might then be able to achieve accurate business service assurance, Garbani says. For now, IT users can benefit from the real-time discovery of network and application topologies, and the problem isolation these tools offer, he says.

> "[BIM software is] a move from reacting to problems to proactively controlling how we deliver service."
>
> Timothy Hagn, vice president of IT operations and engineering, Zurich Life

Meta's O'Donnell agrees. He says the upfront work — and follow-up change management when network elements are added or removed — could deter enterprise users looking for a quick fix to their service management woes. He says the extensive configuration some of these tools require could be even more of a deterrent than the hefty price tag on most of these software add-ons. Prices range from $50,000 to more than $1 million, depending on the vendor and the enterprise implementation.

"Users cannot expect to do this manual effort on a wide variety of services yet, especially services that are very dynamic in how they use the underlying infrastructure," O'Donnell says.

Still, he credits vendors with adequately building models, aggregating data and linking service components to management information such as performance and status. But taking BIM software to the next level is going to be tough, he says. "Future developments in terms of auto-discovering more complex relationships are necessary for this to work," O'Donnell says. "I see this evolution as being a difficult one." ■

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Same software, different name?

Business impact management software resembles service-level management tools, but they have critical differences.

Is it asset management or inventory management? Configuration management or change management? Service-level management or business impact management?

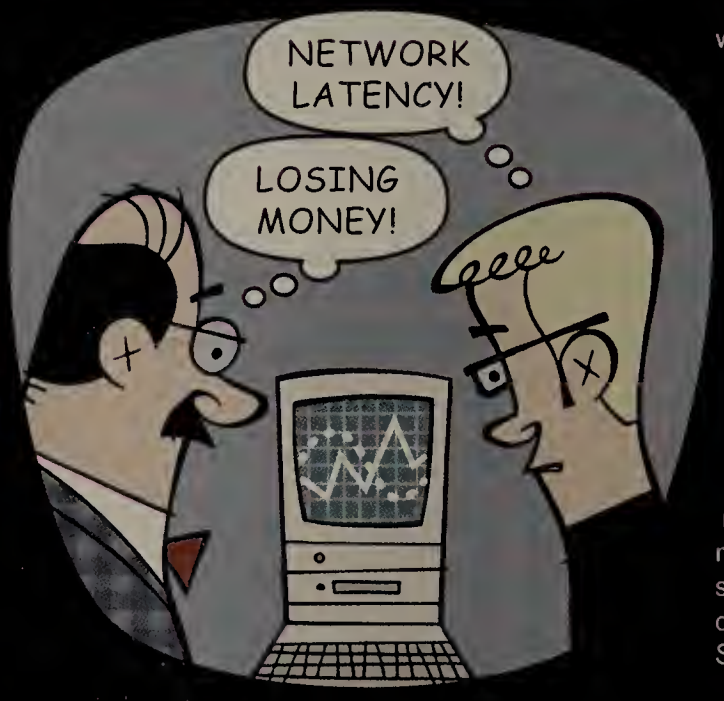
Often in the high-tech industry, users must dissect the language used to describe a product before they can determine if they want the technology. Aligning IT with business objectives to better manage application performance is the latest trend for network management vendors. New products from vendors such as BMC Software, Managed Objects and Micromuse claim to manage service levels across multiple network elements, databases and servers to keep application performance on track.

With all the talk of service levels, users could think new BIM tools might just be old SLM products repackaged with a trendy new name. But industry watchers say otherwise.

"BIM could be considered an evolution of sorts," says Glenn O'Donnell, research director at Meta Group.

BIM tools are an extension of SLM software in that they look to ensure services are delivered accurately and efficiently. The driving force behind the BIM buzz, he adds, is the trend to focus on business objectives.

"The demand for these products exists right now because IT organizations are more strongly being forced to demonstrate their value to the business," O'Donnell says. "These products can offer good visibility to help network managers understand business-related issues."



And, a fundamental difference exists between SLM and BIM offerings.

"SLM is a verification that a service is delivered the way it's predefined to be delivered, and that's typically very IT-oriented," says Jean-Pierre Garbani, a research director with Giga Information Group. He says the rules and thresholds written for SLM software use technology terms such as network latency and server response time. Whereas BIM software requires IT staff to configure the technology based on business objectives.

For example, if a top company executive wants the e-commerce page to respond to an end-user request within 2 seconds, the network staff has to determine how to configure all the devices and applications that touch the business service to guarantee the response time. Many tools of the past could guarantee servers stay available 99.99% of the time, but meeting one metric cannot guarantee a Web page will deliver its content within 2 seconds.

SLM software can track the availability of, say, a network switch, a Web server, an application server and a database. But even if each element delivers on its 99.99% availability, the network may not meet service-level agreements (SLA) requiring 99.99% uptime. When users aggregate the performance data, such as response time, availability and network latency, and add the metrics from the four separate elements, the actual availability of all the components working as one unit might fall below the SLA measure.

Today's BIM tools aim to aggregate the performance data in real time and prevent service levels from dropping before end users can be affected. Many of the new software offerings include modeling technology that lets network managers group the network devices, application and Web servers, and databases that a business service requires as one managed unit. The software can pinpoint where in that unit a performance degradation has occurred and let network managers know what users and business-critical processes will be affected.

"The industry is moving to a model of service assurance," Garbani says. "All these disparate service levels must be aggregated in real time."

— Denise Dubie



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Another Case Networked Storage for Back to Basics

— By Tony Prigmore, Senior Analyst at Enterprise Storage Group

ESG Enterprise Storage Group

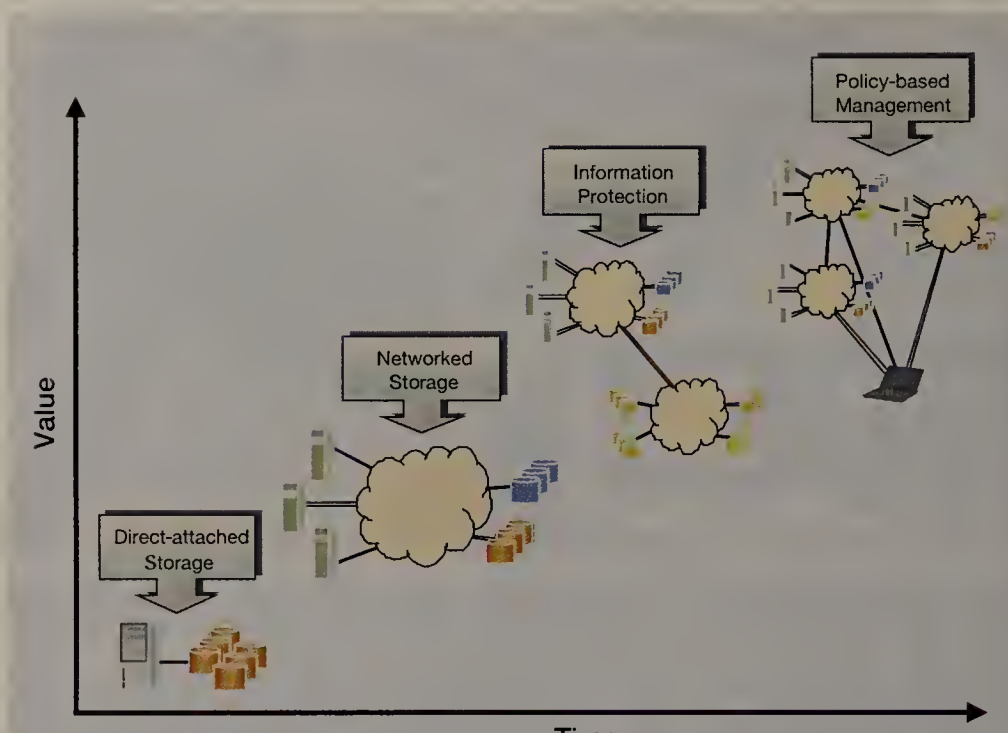
Storage Knowledge • Business Results

Have you reached the point yet where some of the popular storage terminology has lost it's meaning? Will you ever have time to think about how you are going to deploy, integrate, and leverage important storage technologies such as virtualization, data replication, and policy-based management? Ever wondered how your peers in IT that stand up and tell success stories at storage trade shows and user groups actually get those results? You know the ones: they have a 200TB storage infrastructure, running as an SLA-based, utility model and IT profit center, growing at 75% annually that is managed by 1.5 perfectly skilled storage administrators; they lost their primary data center to a tornado during year-end close but effortlessly failed over to their secondary site for recovery. Oh, and this all occurs without their users knowing it even happened.

The answer to these questions is that very few IT professionals have the luxury of time to create an internal perspective and craft a sound strategy that helps transform them into one of these "super" storage shops. The good news for IT professionals is that this is a battle they can win, there is hope, and in this case, it is found by examining the simple notion of networked storage.

Networked Storage defined

Networked storage is the ticket to the game. It is the first step toward realizing higher value from storage which ultimately puts you on a path to better information protection, improved manageability and provisioning of storage infrastructure. Networked storage is fundamental to enabling important business requirements such as platform and data migration frequently associated with consolidation projects. ESG defines networked storage as an integrated architecture that serves either block or file storage requirements over Fibre Channel or Ethernet networks.



Source: Enterprise Storage Group, June 2002

The key to this definition is the "integrated architecture" and the most important discussion that you should have with your vendors is how much flexibility of services (block, file) do I get and how can I leverage a common set of tools to improve or unlock efficiencies? Gone are the days of debating NAS vs. SAN; most vendors have now aligned products (or product roadmaps) in a way which recognizes that IT organizations will always have both file and block storage requirements. Look for a vendor who is equally comfortable having a conversation about NAS & SAN, or block & file. Ultimately you want to select a vendor who is willing to build you an infrastructure that addresses your needs from an application requirements perspective.

Networked Storage and Information Protection

Storage decisions have subtle but strong chronological dependencies. For example, it makes no sense to discuss how to introduce remote replication into storage environments that are still direct-attached. The migration to a networked storage environment is critical to achieving the appropriate level of protection without creating a storage administrator's nightmare. This is true for both replication of primary storage as well as backup and archiving of data to secondary storage. The creation of a centrally managed storage resource has well-proven implications for the administration of backup (the original killer app for networked storage) as well as more sophisticated replication that can be measured in most TCO models.

Networked Storage and Policy-based management

In all well managed storage environments there is a constant drive towards enhancing the level of overall IT productivity. This might begin with documenting and enforcing process, establishing rules or policies, and ultimately preparing for automated management of storage. Again, networked storage is the prerequisite to establishing a comprehensive policy-based environment as the storage assets are managed against utilization objectives and time to provision objectives much easier than a direct-attached storage environment.

So what step should I take first?

If you don't have the luxury of lots of experienced storage staff, your first step is to establish for your organization the networked storage criteria that all vendors' solutions must meet before they are selected. The idea here is to preclude or reduce the deployment of "point" solutions that may have the best price today but actually create more administrative burden over time. If your staff is experienced, they can create this criteria on their own, but if you just started down the path towards a networked storage environment, it's best to reach out to an independent solution provider or services organization for assistance. These firms understand how important the requirements phase is to long-term success with storage, and the best will offer a systematic approach to capturing and documenting these requirements.

The second step, which applies to shops that already have SAN and NAS solutions deployed, is to determine precisely what storage is not networked. Understanding this provides IT with the opportunity to synchronize consolidation projects at the application or server level with storage architecture changes that help migrate direct-attached storage to networked storage.

The road to maximizing the efficiency of your storage infrastructure may at first appear to be a long and arduous one, but it is a path that must be taken. Networked storage can unlock management efficiencies that are not possible in a direct-attached environment as well as enabling information protection levels that are appropriate and consistent across the enterprise. So take that first step...back to the basics of networked storage.

For more information on Networked Storage and the Enterprise Storage Group, go to:
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Shakin' on the SALT

The proposed SALT standard for speech-enabling Web content promises to make self-service, call center and other such applications more appetizing.

By Carolyn Duffy Marsan

Imagine a salesman talking to your Web-based CRM system from his cell phone. He asks for the latest sales figures for a client he's flying to meet, and the CRM system e-mails him moments later.



Such "multimodal" applications are the idea behind Speech Application Language Tags (SALT), an emerging technology that provides a speech interface to Web information. An extension to existing Web programming models and markup languages such as HTML, XHTML and XML, SALT helps create speech interfaces that will reside alongside traditional I/O modes such as text, audio, video and graphics. Rather than dealing with cumbersome custom code, SALT developers should be able to work with familiar tools and techniques.

Developers who try SALT will find it to be a pretty solid specification, says Alexander Rudnicky, a senior systems scientist at Carnegie Mellon University's School of Computer Science. Rudnicky and his students hope to complete development of an open source SALT browser by year-end. "Our vision is that once it is available and distributed, tens of thousands of people can download our browser and start playing with it," he says.

Although promising, SALT is still in its infancy. It will be a year or more before network executives can consider adding SALT-based capabilities to their internal or external Web applications.

"The exciting thing about SALT is that it's a necessary first step for concurrent multimodal applications to become mainstream," says Dan Hawkins, managing analyst for voice business at Datamonitor. "But that's some years off."

Where SALT gets its flavor

SALT has been under development for a year by the SALT Forum, an industry group led by Microsoft, Cisco and Intel that has grown to include 50 companies. The SALT Forum wants to create an open, royalty-free standard that supports speech access to Web content through a variety of devices, including telephones, desktop and tablet PCs, and PDAs. The SALT Forum in July released Version 1.0 of the specification to the public and submitted it to the World Wide Web Consortium (W3C) for consideration by working groups developing standards for voice browsers and multimodal applications.

This fall, the W3C working groups will begin discussing how to move forward with the SALT specification and how SALT might interrelate with the W3C's VoiceXML standard, says Dave Raggett, a W3C fellow who leads these two working groups. While SALT focuses on speech-enabling Web pages and creating multimodal applications for wireless users, VoiceXML targets telephony applications such as directory access, call routing and cell centers. But whether these two standards will be complementary or competitive is unclear as SALT also can be used to create telephony applications.

Putting SALT on the table

Enterprise use of SALT will likely be for the development of multimodal applications for areas such as Web-based self service, call centers, CRM and sales force automation systems. Or, companies could give SALT-capable tablet PCs to workers such as insurance adjusters, real estate agents and aircraft mechanics who prefer hands-free input to fill out Web-based forms.

Industry segments expected to adopt SALT are those that already use speech recognition and interactive voice response systems: banking, finance, telecom, travel and other customer-service-intensive industries, says Peter Gavalakis, a marketing manager at Intel.

SALT-enabling a Web site will require Web development tools that support the specification, and SALT-capable browsers and Web server software. SALT browsers are available from HeyAnita and Philips, and Kirusa offers a SALT-based multimodal platform. Inter-Voice Brite says it will add SALT support to its Media Gateway, which supports VoiceXML, by year-end.

But Microsoft's support for SALT is most critical, industry observers say.

"SALT is important because Microsoft is involved," Datamonitor's Hawkins says, adding that Microsoft is focusing exclusively on SALT. The company is not involved with VoiceXML development and doesn't support VoiceXML in its products. (SALT co-developers Cisco and Intel, on the other hand, do support VoiceXML.)

Microsoft in May began shipping the beta version of its .Net Speech SDK, a Web development tool kit that supports SALT. The tool kit includes add-ons to Microsoft's Internet Explorer and Pocket Internet Explorer browsers to support speech input. And by year-end, Microsoft plans to release a beta version of its .Net speech platform, which is server software that will support speech-enabled Web applications, says James Mastan, director of marketing for .Net speech technologies at Microsoft.

SALT supporters have their challenge in finding service providers and companies willing to invest in speech-enabled Web applications during these tough economic times. Other hurdles include spreading awareness of the technology among Web developers and continuing to develop industry partnerships with companies such as AT&T and IBM, which support VoiceXML and have yet to join the SALT Forum.

"There are tens of thousands of developers who are doing stuff in VoiceXML," Hawkins says. "The challenge is getting all those developers to work on SALT."

Carnegie Mellon's Rudnicky notes that SALT does a good job of hiding much of the complexity involved with developing speech-enabled systems. But, he says, SALT lacks a set of libraries or reusable code for developers to modify to their purposes.

Still, Rudnicky remains optimistic about SALT's potential because, he says, it will let people who aren't intimately familiar with speech recognition, voice synthesis and other underlying technologies create working applications. "SALT is a big deal." ■

SALT

Ask this...

... of your Web infrastructure vendors about SALT

- When will you ship products that support the SALT specification?
- Will you support independent or concurrent multimodal applications?
- To what degree can I leverage my existing investments in Web infrastructure with your SALT-based products?

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Securing Web services

By John Fontana

The buzz accompanying Web services today no longer vibrates around system integration and XML interfaces, but around security — and the frantic, mishmashed efforts to create security standards.



With three standards bodies cooking up more than a dozen Web services security protocols, overlap and confusion is inevitable – but, fortunately, not everlasting.

Web services are built with standard interfaces based on the Simple Object Access Protocol (SOAP) from the World Wide Web Consortium (W3C). But because SOAP is not secure at this point, Web services cannot achieve their mission of enabling business-to-business commerce and integration of business partners' disparate platforms, network executives say.

Without security in the Web services framework/architecture, development of other Web services standards for e-commerce also will suffer, including those to support reliable and asynchronous messaging, business-process workflow and transactional integrity.

"Security is a rollout inhibitor today, absolutely," says Mark Jones, vice president of business development for the National Student Clearinghouse (NSC), a nonprofit organization in Herndon, Va., that provides university enrollment and degree verification services to lenders and businesses. NSC knows the issues firsthand, as it is on the verge of deploying two Web services to streamline the collection and dispersal of its data to potentially millions of partners.

Jones likens the challenge of establishing Web services for partner-to-partner trading to using public-key infrastructure and electronic data interchange. While standards-based partner-to-partner transactions are great conceptually, they're difficult to implement. "Having just been through that for 10 or 15 years with [electronic data interchange], [I know] it is a very tough problem to solve," he says. "No one has really perfected a way to do partner-to-partner trading yet. So we question the evolution of the standards and how well they will work."

Jones isn't alone. Recent surveys by Hurwitz Group and ZapThink show that security is the No. 1 obstacle to adoption of corporate Web services.

Of course, security can be added to SOAP via extensions, and so a flurry of work to do so is in progress — spanning three standards bodies that have produced complementary but sometimes overlapping protocols (see chart, page 66).

Extensions will standardize ways for systems to prove their identities, validate user authorization and access credentials, guarantee confidential transactions, and ensure integrity and nonrepudiation.

While waiting on standards ratification and vendor implementation of those extensions, many network executives are limiting Web services to intranet projects or improvising security when Web services traverse corporate boundaries. Such improvisation includes homegrown security, fitting established Internet standards or proprietary products onto projects, or contracting with third parties to supply security services. NSC sidestepped the standards maze by using software from Flamenco Networks to wrap authentication, authorization and management capabilities around its Web services, says Doug Falk, NSC CIO.

"We probably could have started with weaker encryption and relied on a model using HTTP-S and authenticating based on a user ID and password. That would have worked for a period of time until someone raised concerns over that model being too weak," Falk says.

The rush is on

Meanwhile, XML standards bodies have been busy. The Internet Engineering Task Force (IETF), the Organization for the Advancement of Structured Information Standards (OASIS) and the W3C are working on or have completed no fewer than 13 security protocols for use with Web services. These include extensions for encryption, digital signatures, nonrepudiation and long-accepted standards such as Kerberos that are being folded into the Web services mold.

With so many cooks in the kitchen, the industry lacks a clear view of how individual Web services security specifications will be melded into an interoperable security framework.

To their credit, OASIS and W3C are comparing their efforts with the aim of clarifying the security work. "If any of these security specifications are going to work together, we have to work together," says Karl Best, director of technical operations for OASIS.

The cooperation began with WS-Security, a specification proposed by IBM, Microsoft and VeriSign in April and turned over to OASIS last month. WS-Security, which lets Web services pass secure and signed SOAP messages, has at its core the W3C's XML Encryption and XML Digital Signature and will add six other extensions for functions such as expressing security policies, trust relationships, federation and authorization. Then last month, OASIS and W3C sponsored a forum to compare and contrast work being done by both groups.

In addition to XML Digital Signature and XML Encryption, W3C is developing the XML Key Management Specification and a Web Service Architecture that includes a security framework. Meanwhile, OASIS is developing the Security Assertion Markup Language (SAML) for authentication and authorization, the Extensible Access Control Markup Language, Service Provisioning Markup Language and the XML Common Biometric Format.

The IETF's work centers on standards for transport-level security on which OASIS and W3C are building appli-

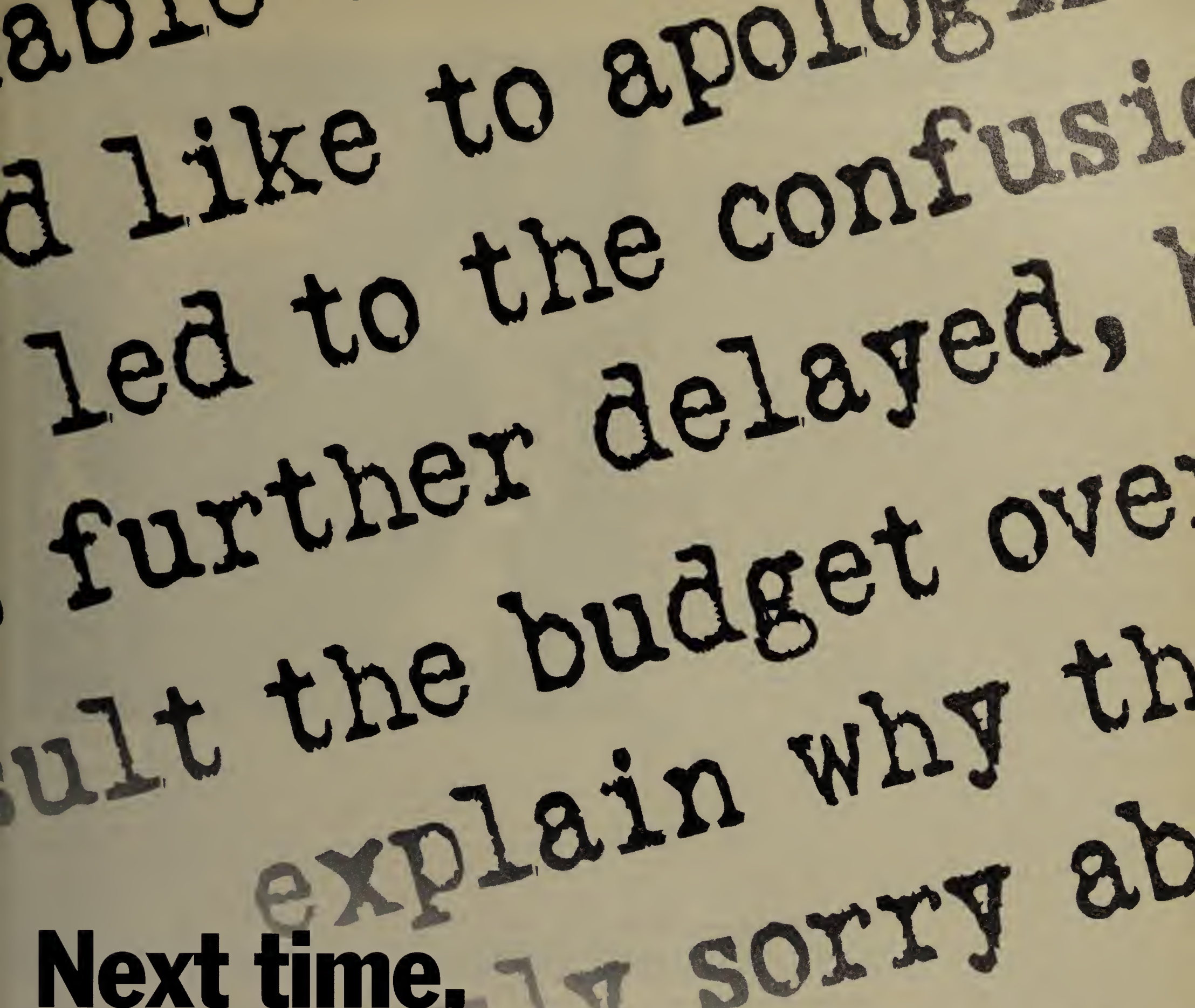
See Web services, page 66

WEB SERVICES SECURITY

Ask this...

... of your Web services vendor

- What security do you provide that lets Web services extend outside my firewall?
- How do I get around security obstacles today while staying on a path to adopt standardized technologies in the future?
- What are you doing to avoid the security complexities that have plagued other object-oriented programming models?
- In what standards groups do you participate?



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Web services continued from page 64

cation-level security protocols.

The groups need to develop a conceptual "security stack" model that illustrates how various protocols will rely on each other, rather than compete, says Anne Thomas Manes, a security expert who works with OASIS and W3C and is CTO for Web service security vendor Systinet. "The higher-level items take advantage of the lower levels of the stack. So WS-Security depends on XML Digital Signature, XML Encryption, SAML and SOAP," she says.

Corporations pushing ahead

Such a model is logical, but generates only passing interest from corporations on the cutting edge that want to push their Web services over the firewall now.

"At this point we are using a standard firewall system with Secure Sockets Layer encryption, and we have built our own Web services gateway for authentication and authorization," says Gereon Fredrickson, senior director of technology products for Galileo International, a provider of data to the travel industry.

While Galileo waits for the interoperability that standards promise, a handful of vendors offer a collection of middleware software and services to boost Web services security, including BEA Systems, Cape Clear, Flamenco, Grand Central Networks, IBM, Iona, Kenamea, Microsoft, Oracle, Sonic, Sun, Systinet and Tibco.

Galileo, which went live with its first external Web service last month, is waiting for the security standards landscape to flatten. "There is still some shake-out that has to happen before we see where the actual standards will settle. Then we'll see where we can use those," Fredrickson says.

Signs of a settling have begun in that the WS-Security specification is generally regarded as a competent starting point. It specifies how communication among Web services will be secured and describes how to put security protocols to use within SOAP. WS-Security adds security information to the headers of SOAP messages using XML Encryption, XML Digital Signatures and identity protocols such as SAML or Kerberos, an IETF standard.

"In terms of pure Web services security, we are just starting out," says Bob Sutor, director of e-business standards strategy for IBM. "But WS-Security starts to lay the foundation."

Settlement also is happening around workflow specifications that will aid in deploying security at execution points when multiple Web services applications are tied together across a number of organizations.

Last month, IBM and Microsoft combined their respective Web Services Flow Language and XLANG to create the Business Process Execution Language for Web Services. The language lets users specify a collection of Web services and the order in which they need to be executed as part of a business process such as filling an order. It joins similar efforts from Sun on Web Services Choreography Interface and protocols included in OASIS's electronic business XML specification.

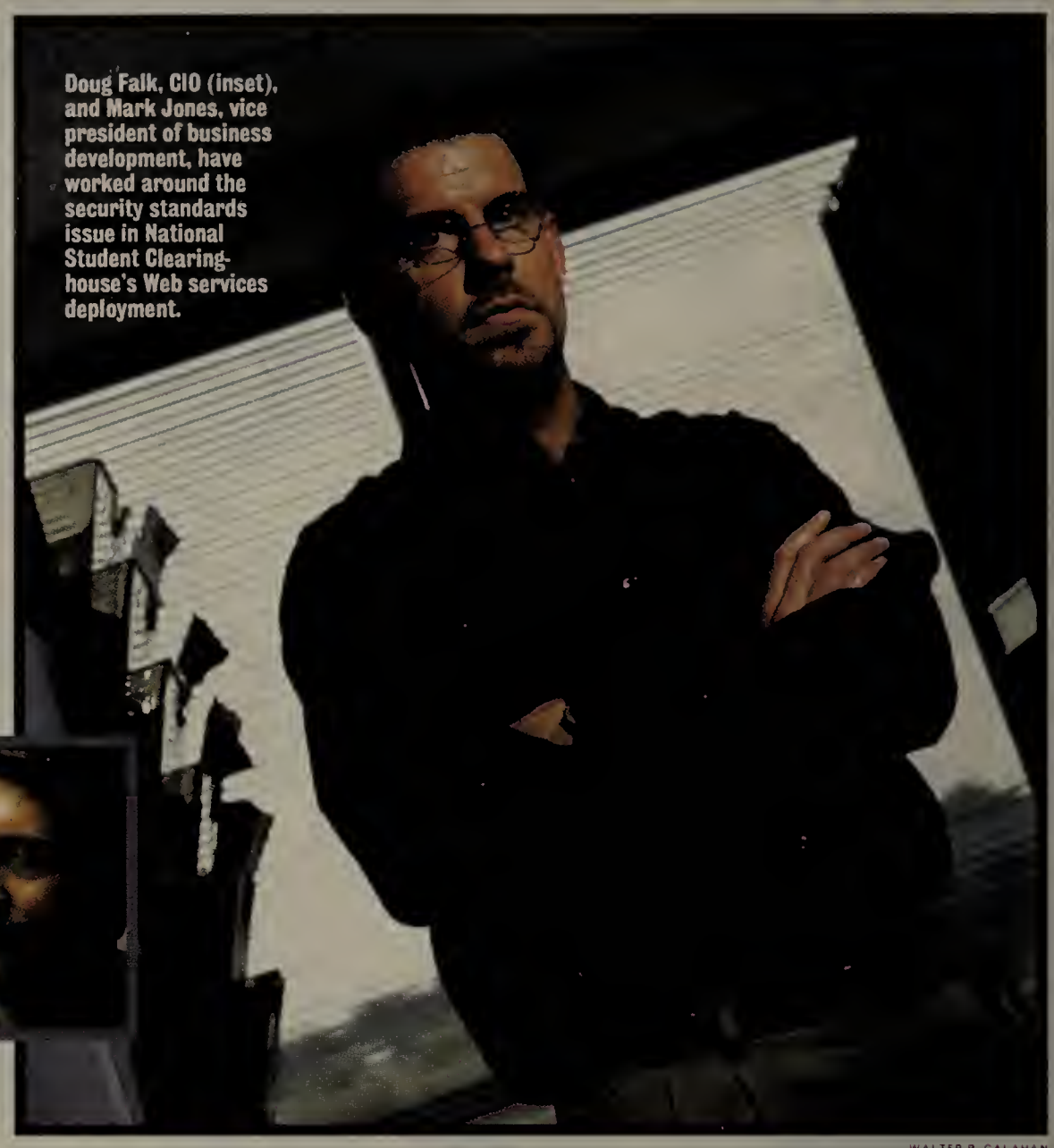
With the stages of a business process defined in a workflow, security tenants such as encryption, authentication and access control can be defined per stage instead of blanketing the transaction as a whole. The workflow lets certain forms of security be applied only where they are needed.

"If you manage the workflow of a transaction, you can trace each step and make sure security is occurring," says Bernhard Borges, managing director of the advanced technology group at PricewaterhouseCoopers Consulting. He says workflow builds a foundation that finally lets multiple Web services be aggregated into a business transaction.

"Once you get the bits and pieces of workflow, you can start to apply security," Borges says.

However, experts say it could take two to five years before the standards are mature enough for corporate customers to make use of them.

"Without a security and trust infrastructure, Web services will be dead on arrival," says Phillip Hallam-Baker, principal scientist for VeriSign. "But people shouldn't be concerned that this is a problem that won't get solved, because there is very large agreement on the basic approach on how to go about this." ■



Doug Falk, CIO (inset), and Mark Jones, vice president of business development, have worked around the security standards issue in National Student Clearinghouse's Web services deployment.

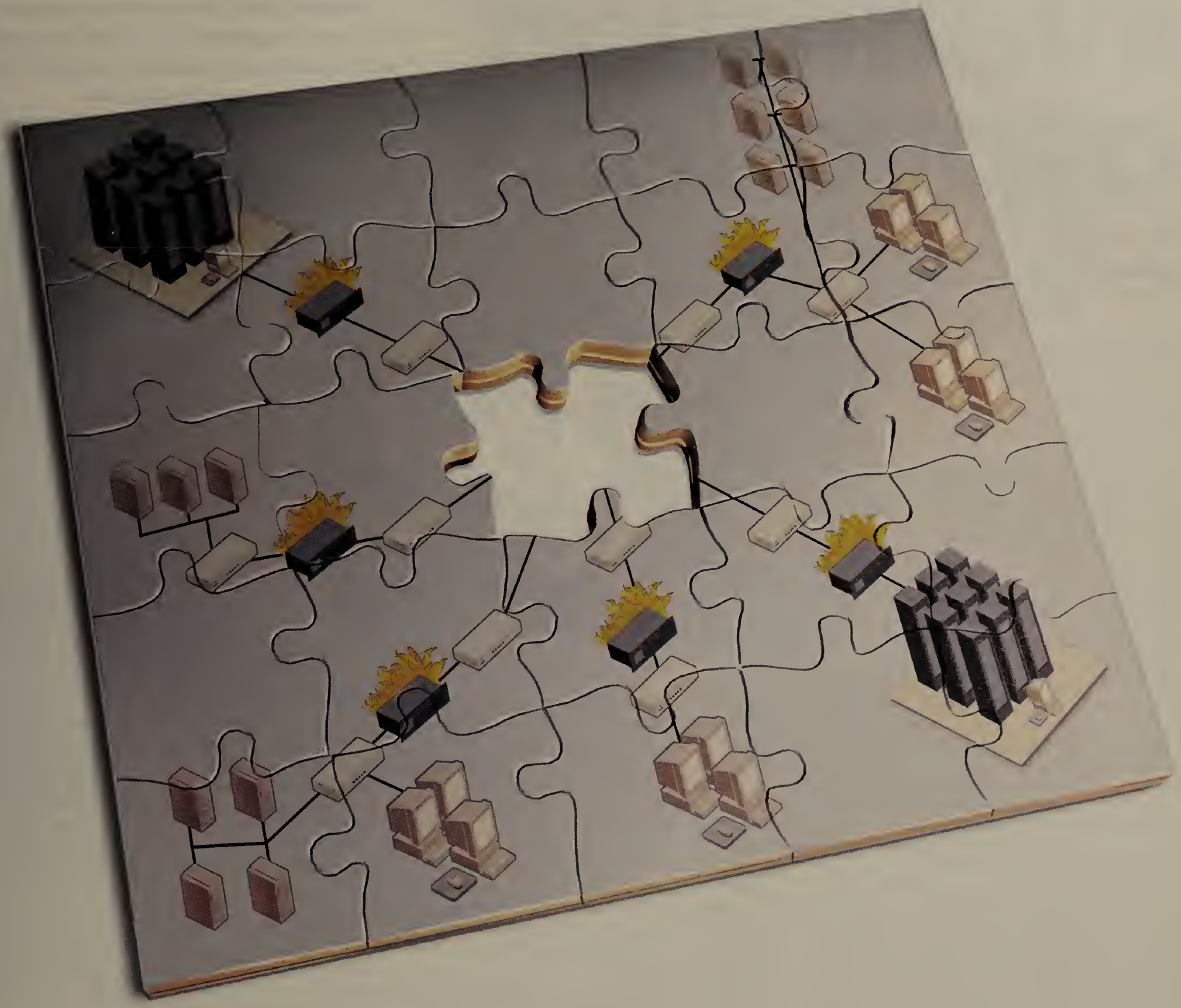
WALTER P. CALAHAN

A standards mishmash

The Organization for the Advancement of Structured Information Standards (OASIS) and World Wide Web Consortium (W3C) have pinpointed 13 specifications likely to form the foundation of a Web services security framework.

Standard (proposed or final)	Standards body/Status	Description
SAML Security Assertion Markup Language	OASIS/Final vote	Exchanges user and machine authentication and authorization information.
XACML Extensible Access Control Markup Language	OASIS/Committee review	Expresses policies for information access.
SPML Service Provisioning Markup Language	OASIS/In committee	Defines how to exchange user, resource and service provisioning information.
WS-Security	OASIS/Forming technical committee	Extends Simple Object Access Protocol with XML security protocols.
XrML Extensible Rights Management Language	OASIS/Gathering requirements	Manages copyrights of digital content.
XCBF XML Common Biometric Format	OASIS/Defining scope of work	Defines XML codings for Common Biometric Exchange File Format.
XML Digital Signature	W3C/Completed	Provides integrity, signature assurance and non-repudiation.
XML Encryption	W3C/Final vote in committee	Encrypts and decrypts digital content.
XKMS XML Key Management Specification	W3C/Working draft	Provides a method for obtaining cryptographic keys.
Transport Layer Security/ Secure Sockets Layer	IETF/RFC 2246	Secures Internet traffic between two points.
SASL Simple Authentication and Security Layer	IETF/RFC 2222	Adds authentication to connection-based protocols.
Kerberos	IETF/RFC 1510	Provides tickets for authenticating users.
BEEP Blocks Extensible Exchange Protocol	IETF/RFC 3080	Helps establish quality of service over the Internet.

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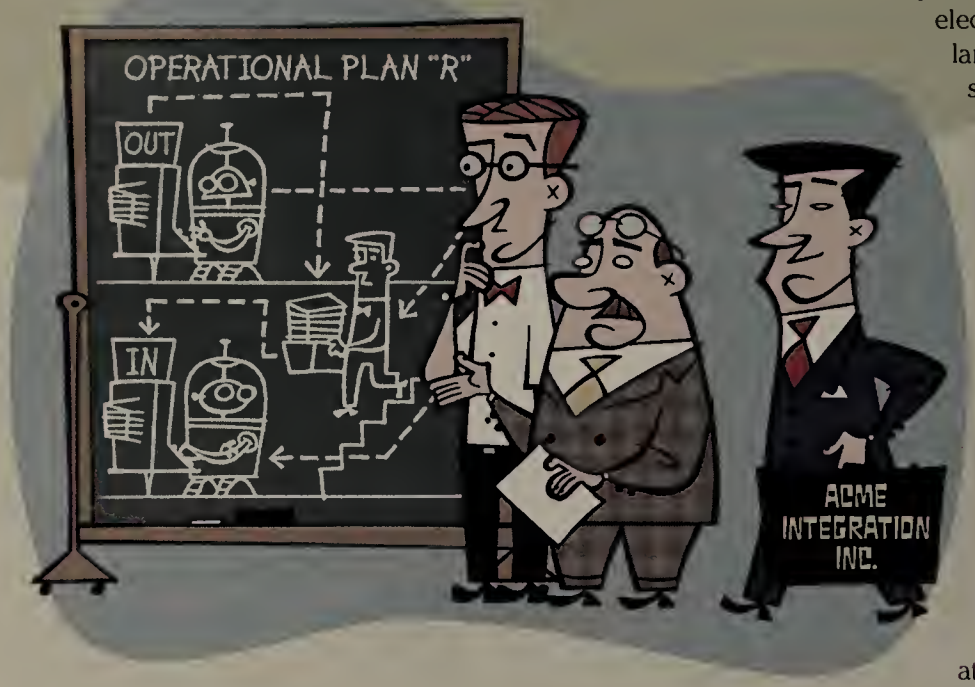
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Application integration aspirations

Enterprise application integration vendors have entered the business process management fray with integrated wares, but some question whether that approach is feasible.

By Ann Bednarz

Business process management is like Hush Puppies shoes — an old standby that periodically experiences a burst of recognition.



Today, BPM is back in vogue ... with a twist. It's no longer the sole domain of pure-play BPM vendors such as Staffware, Metastorm, Intalio and Fuego. Enterprise application integration (EAI), enterprise resource planning (ERP) and CRM vendors have bolstered their suites with tools for analyzing and modeling business processes. These BPM add-ons for the most part are not as advanced as tools from the purists; however, the suite vendors are betting that users are willing to sacrifice functionality for familiarity and ease of integration.

BPM is about analyzing and retooling the way business gets done. Examples of business processes are handling a customer service request from report to resolution and "lead to order"— the steps from receiving a sales lead through completing a sales order.

Trapped in a pinched economy, companies today are scrutinizing such processes hoping to squeeze out inefficiencies by automating manual tasks.

"It's almost scary the way the terminology 'business process' is reoccurring, at a force almost stronger than during the heydays of ERP," says Bernhard Borges, managing director at PricewaterhouseCoopers Consulting.

On the business software side, PeopleSoft early this year unveiled messaging middleware called PeopleSoft Integration Broker for executing business processes across applications. CRM vendor Siebel Systems this spring announced Universal Application Network, which includes a library of industry-specific business process templates and a design tool for modeling and configuring business process workflows.

But the most buzz has come from the EAI side. EAI vendor webMethods offers business process modeling and management functions with its webMethods Business Integrator. Competitor Vitria includes tools for modeling, automating and analyzing business processes in its BusinessWare integration platform. SeeBeyond Technologies has its e-Insight Business Process Manager, and IBM added BPM to its integration arsenal last year when it purchased CrossWorlds Software.

Integrating processes

Coupling BPM and EAI tools provides a flexible way of linking applications and different parts of a customer's supply chain independent of the applications being connected, says Paraic Sweeney, vice president of marketing for IBM's software solutions and strategy division. This, he says, is "a bridge between the business issues and the technology that underpins it." A business user can describe a business process, and then an application developer can structure the links needed to execute the process from within the same application.

That strategy is resonating with some users. Smurfit-Stone Container went through a lengthy selection process to find an application-integration platform that also handled BPM. "We thought about where we were going in the future, not that we necessarily needed all of the pieces immediately," says Bob Wills, integration architect at Smurfit-Stone.

The Chicago packaging manufacturer had an immediate need to link applications so it could share information among its 350 paper mills and manufacturing plants. Scattered locations need to funnel financial information to Smurfit-Stone headquarters. In addition, the mills and plants need to swap inventory and order information so the mills know what kind of paper materials to manufacture and the plants know when their supplies are en route, Wills says.

Smurfit-Stone selected SeeBeyond's e-Gate Integrator messaging middleware and e-Insight BPM modules. Building a hub-and-spoke integration model with SeeBeyond's tools eliminates dozens of point-to-point application hooks, Wills says.

The SeeBeyond software also will provide future efficiencies. Today, Smurfit-Stone uses electronic data interchange with some of its largest customers. But EDI is out of range for its smaller partners, many of whom fax their orders. With SeeBeyond's software, Smurfit-Stone will be able to swap order and shipping information electronically, without EDI or faxes, while offering more flexible electronic payment options and more efficient transportation processes.

Indeed, today's collaboration-driven transactions are mired in the process. A complex financial transaction might encompass 100 processes. Executing them, including manual portions, requires application integration and BPM.

"Anything meaningful in terms of a transaction includes a workflow," Borges says. "It's fairly natural to start looking at business process and integration as a single entity or at least as something very closely related."

But Darcy Fowkes, research director at Aberdeen Group, warns users not to expect the most robust BPM functionality from integration vendors that "don't have the depth of knowledge into processes that the business process management folks have." Still, Fowkes says she understands the appeal of consolidated EAI and BPM platforms: "You can see how the integrators are saying 'I'm already exposing it, let me just take it to the next layer.' You can see why the customers are saying, 'But I already have webMethods installed. Why do I want to go through the process of putting something else on top?'"

Companies can take advantage of integrated software but shouldn't expect one person to do both EAI and BPM. One is a messaging platform with data normalization and metatagging capabilities, the other one is about business logic, Borges says.

BPM is not a trivial exercise, Borges stresses. It takes a lot of enterprise soul-searching to choose a platform, and the stakes are high. "Two or three years ago," he says, "failure was considered a learning experience. Today, failure is basically bankruptcy." ■



. . . of your business process management vendors

- What experience do you have in my company's industry?
- Do your prepackaged templates address my industry's business processes and regulatory obligations?
- Does your software include business process modeling features for measuring the effect of a prospective process change?
- Do you support business process standards such as Business Process Modeling Language, Web Service Choreography Interface, Microsoft's XLANG specification and IBM's Web Services Flow Language (WSFL)?
- Will you support Business Process Execution Language for Web Services, the newly proposed standard to replace WSFL and XLANG?

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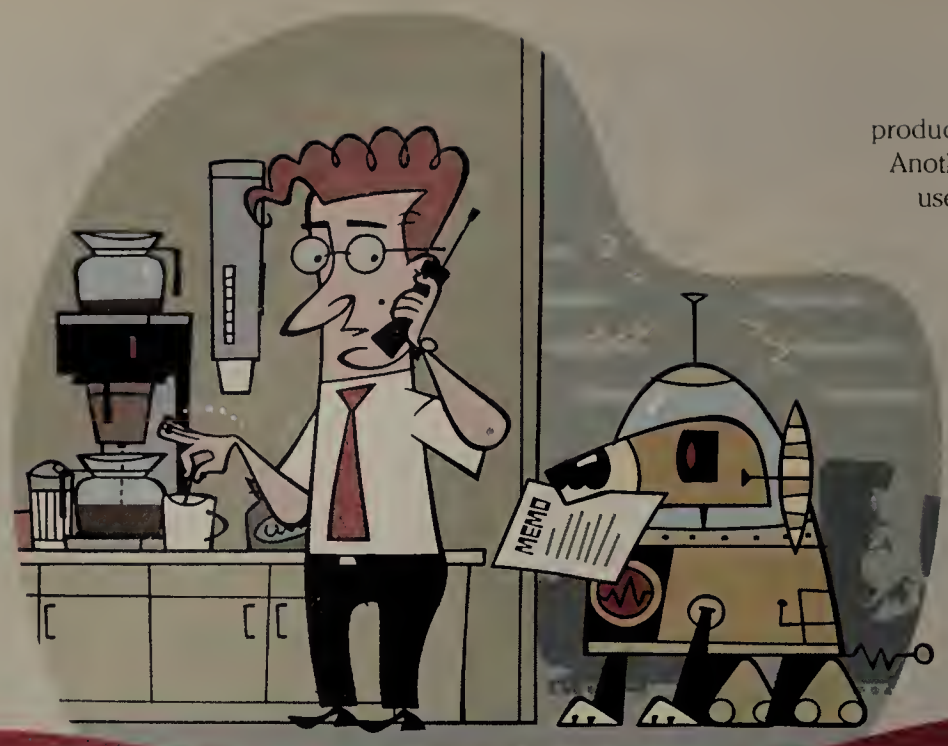
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The presence factor

By Jennifer Jones

The familiar buddy list will soon take on a new personality, as presence technology begins gracing corporate instant messaging and other communication tools.

The promise of presence is that users can reach others instantly regardless of location of either party, over a variety of media, including chat, video and wireless or traditional voice. Also possible will be technologies such as spontaneous audio- and video-conferences.

"For us, the technology has become a valuable tool, not just for instant messaging but for things like application sharing and whiteboard functionality," says Nicole Picciotta, CIO at Shaw Pittman, a Washington, D.C., law firm that uses IBM Lotus' Sametime collaboration tools injected with presence.

Many industry watchers predict that once presence technology breaks free of its instant-messaging confines and moves further into IP telephony and other areas, it could become an even more powerful antidote to corporate communication hindrances.

Adding presence does not alter corporate networks dramatically. You'll have to address the bandwidth needed to support multimedia. You'll also need to deploy some type of server software, usually a messaging/presence server that provides the messaging relay, security and storage for clients.

You have a choice of stand-alone presence software from companies including Bantu, Dynamicsoft, FaceTime Communications, NotePage and Vayusphere. Meanwhile, some larger vendors are bundling these capabilities with collaboration tools. Examples of the latter include IBM Lotus with its Sametime software and Microsoft in .Net Server, industry watchers say.

"The breadth of possibilities here are what makes this pretty exciting. The technology that is now used in applications offered by AOL or Yahoo are only the tip of the iceberg," says Jonathan Rosenberg, chief scientist at Dynamicsoft and co-author of the IETF's Session Initiation Protocol (SIP) standard.

A SIMPLE presence

SIP, a signaling standard for setting up and managing communications sessions between different media, is one of two key protocols for presence. The other is SIP for Instant Messaging and Presence Leveraging Extensions (SIMPLE), now progressing as a uniform way to add presence to those capabilities (but not yet a formal IETF standard). The growing support for these protocols is among the indicators that next-generation instant messaging/presence soon will take off, Rosenberg and others say.

One example is AOL's willingness to use SIMPLE for interfacing its mammoth instant messaging service offering with messaging plays from other vendors. Another is the recent designation of SIP as a call-control standard for 3G wireless networks by major wireless standards bodies including the Third Generation Partnership Project, Rosenberg says.

Just as text-based instant messaging begins to storm the enterprise, its next incarnation – presence networking – takes shape.

More indicative yet is Microsoft's decision to bundle SIP support in its Windows XP operating system to enable PC-to-phone voice capabilities, he says. This will let users build APIs into XP that would inject presence capabilities into voice and video applications.

But instant messaging's thrust into voice communications will not be without its challengers, says Henry Seinrich, distinguished member of engineering at WorldCom.

"The real barrier is that legacy telecom vendors are resisting this tooth and nail, since it would make their industry base obsolete," Seinrich says. He references reluctance among the PBX and IP PBX or softswitch sectors, which he says are resistant to the idea of presence-based telephony services.

Yet other vendors, including Nortel, have embraced SIP. Nortel has included SIP logic into its Succession line of application servers, which will let service providers extend presence-based IP services to users. Nortel also supports SIP in its Succession products for corporations.

Another challenge is habit and cultural resistance, users say.

"There are some audio capabilities built into Sametime, but we've not really moved away from everyday phone calls," Shaw Pittman's Picciotta says.

For Boston public relations firm Porter Novelli, the wholesale swapping of phones for instant messaging has so far come only in extreme circumstances. "When Sept. 11 struck, we benefited from the fact that we had been deploying [instant messaging] and awareness-based tools because of our need to stay fluid in terms of location and to reach our client base," says Bob Elloyan, director of enterprise technology.

Several months ago Porter Novelli started a more formal campaign to include its clients in the use of presence-infused collaboration tools. Using Sametime, which supports SIP and SIMPLE, the firm has included clients in online collaborative workspaces and calendar-sharing exercises to increase the responsiveness and availability of public relations representatives. Making those account members available in real time is the next step, Elloyan says.

The step beyond that would be to harness this efficiency to business objectives — a move that will likely serve to further distance presence from its instant-messaging roots, most agree.

Users such as Porter Novelli are interested in how presence might hold the ultimate promise: competitive advantage. "Never mind that employees have awareness capabilities," Elloyan says. "Our clients need to know where their account team is and have instant access."

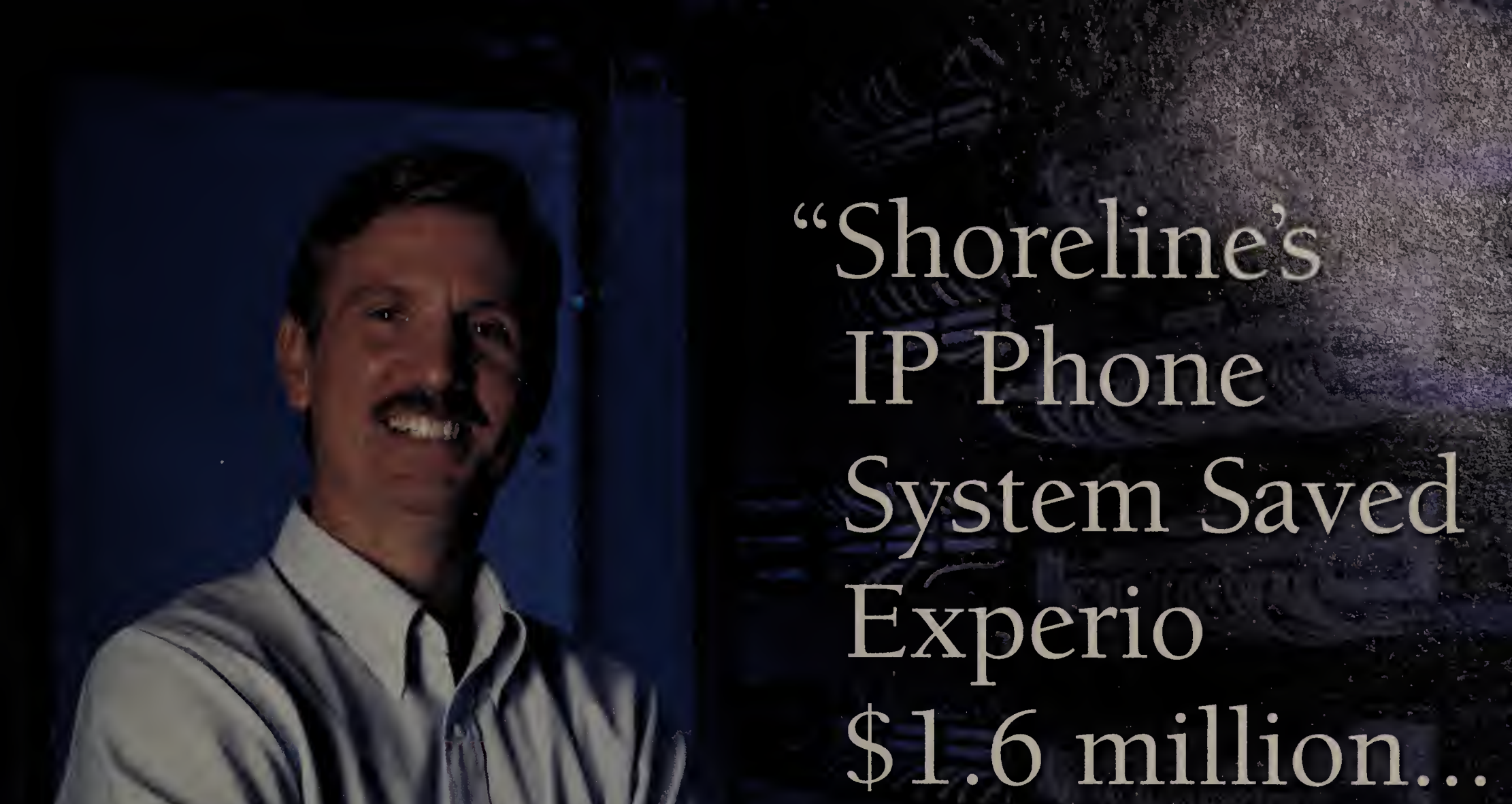
Jones is a freelance writer in Vienna, Va. She can be reached at jjwriterva@aol.com.

PRESENCE SERVER

Ask this...

... of your vendor of presence server or messaging software

- On which part of your product suite do you support presence?
- Are your presence products open and interoperable with the IETF's SIP and SIP for Instant Messaging and Presence Leveraging Extensions specifications?
- What security mechanisms are available in your presence software?
- In particular, do you support encryption?
- Can I add applications onto a proposed messaging product, and can I tailor those applications to a department or business?



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Total Per Site Aquisition Costs	$30,000	$61,700	$31,700
Total Aquisition Costs (X16)	$480,000	$987,200	$507,200
Annual Costs			
Management	$39,600	$72,000	$32,000
Maintenance (Based on 10.1%)	$48,480	$129,280	$80,800
Long Distance	$30,000	$151,000	$121,700
TCO Per Year	**$118,080**	**$352,280**	**$234,200**
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From intrusion detection to intrusion prevention

A new breed of security tools for stopping intruders shows promise, but can't be entirely trusted yet.

By Joanne Cummings

Intrusion prevention seems the next logical step in enterprise security. Turning the intrusion-detection systems developed for spotting attacks into more useful products that stop intruders cold might even be considered a no-brainer.

One thing is for certain, intrusion prevention is creating more than a little buzz among security watchers these days. Start-ups are to thank for the excitement.

"We're seeing these little companies coming up with innovative techniques that threaten the older established markets," says John Pescatore, research director for Internet security at Gartner.

In the offing are tools that meld the best of firewall, IDS, antivirus and vulnerability-assessment technologies with the intent of preventing attacks automatically. The emphasis is on the automation, Pescatore says.

"If the intrusion-detection function or the antiviral-detection function says this is an attack, and the vulnerability-assessment function confirms that the network is vulnerable to that attack, the firewall blocks it or shunts the packet off to some safe destination, thwarting the attack," he explains.

Sounds good. But before such a scenario can occur, two big problems need ironing out. Intrusion-prevention vendors have to find a way to eliminate false positives, and they have to figure out how to run the devices inline without creating network bottlenecks. Plus, the technology needs legitimization.

The latter will come once big players such as Cisco, Computer Associates and IBM jump into the market — by grabbing up the start-ups, of course, Pescatore says. This in turn, will get the attention of security vendors such as Check Point Software, Internet Security Systems (ISS) and Trend Micro — which lead the firewall, IDS and antivirus markets today. Such established security vendors will be at risk if they, too, don't eventually move into intrusion prevention, he says.

A thorny problem

But the big players probably won't make a move till the start-ups work out the technology kinks. Configuration rest far too heavily on manual intervention and the administrator's configuration skills (see related story, page 76).

False positives are thorns in the sides of so many traditional IDSs because, if improperly configured, they will register attacks as legitimate even if those attacks have no bearing on the network. For example, an IDS on a network of Apache Web servers must be told not to register attacks to Microsoft Internet Information Server, otherwise it will issue an alarm when it sees an IIS attack. Similarly, IDS must be updated with patch information when a flaw is fixed. If it isn't updated, the IDS will set off an alarm if it registers attacks against that flaw, even if the flaw has been patched.

False positives from an IDS are irritating, because they can quickly swamp the network with nearly constant alerts. But they can be downright disastrous from an intrusion-prevention tool.

Say your intrusion-prevention tool flags legitimate traffic as malicious, a false positive that happens at times when IDSs are set to look for traffic anomalies.

"Sometimes a valid business transaction may act like an attack," says Van Nguyen, director

*See **Intrusion,** page 80*

Start-ups tackle intrusion prevention

Here is a sampling of start-ups combining the capabilities of previously separate security tools to detect and block intrusions before they hit the network. All claim to work inline at wire speed.

Vendor	Product	Capabilities: Firewall/IDS/antivirus/ vulnerability assessment	Processor	Top speed	Differentiator
IntruVert Networks www.intruvert.com	IntruShield 4000 Availability: Now Pricing: $100,000	Yes/yes/future/future	Intel	2G bit/sec	Signature detection; anomaly detection; DoS detection; ability to set up virtual IDS domains for protecting specific network segments or user departments.
iPolicy Networks www.ipolicynetworks.com	IpEnforcer 6000 Availability: Now Pricing: Starts at $125,000	Yes/yes/yes/Q4	Intel	4G bit/sec	Modular design; can run seven security applications simultaneously; auto downloads latest signatures; previously focused on the carrier market but now targeting corporate accounts.
OneSecure www.onesecure.com	OneSecure Intrusion Detection and Prevention System Availability: Now Pricing: Starts at $16,500	Yes/yes/yes/future	Intel	1G bit/sec	Traffic-specific attack detection limits false positives; uses several detection mechanisms, including protocol anomaly, traffic anomaly and stateful signatures.
TippingPoint Technologies www.tippingpoint.com	UnityOne Availability: Now Pricing: $100,000	Future/yes/yes/yes	Vendor-engineered	2G bit/sec	Application-specific processor enhances speed; integrated vulnerability assessment reduces false positives; auto downloads latest signatures.

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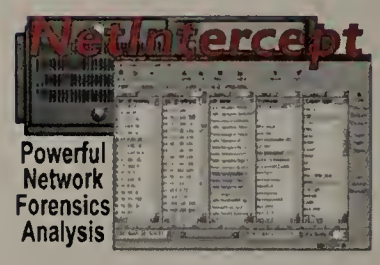
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The people side of prevention

New intrusion-prevention technology is cool, but it's nothing without great technologists backing it up.



The buzz around network intrusion prevention is a lot like that surrounding airport security after Sept. 11. The need is critical, and everyone wants a high-tech solution.

"You want to be able to walk from your car, onto the plane, without having to be frisked or questioned," says Greg Hinkel, technology lead for computer security at Oak Ridge National Laboratories, a Department of Energy national laboratory in Oak Ridge, Tenn. "Most people want all the detection to be automated and done while they're walking in."

But the most secure airlines rely far more on people than automation, he says. "The Israeli airlines have people who interview passengers and ask them a lot of questions. By interviewing their customers, they can pick out anomalies in behavior. Well-trained people will ferret out far more breaches than the latest X-ray machines or what have you, and that's also true of network intrusion prevention."

But keeping skilled people in the thankless job of network security is a tall order, says Steve Crutchley, founder of 4Front Security, an international security consultancy. "The average tenure for a security staffer in the U.S. is just 18 months now," he says, pointing to a statistic many attribute to the lack of awareness and respect for computer security in today's corporate environments.

Damned if you do . . .

The only way to measure prevention success is by a dearth of incidents, something that over time can make security investments seem like overkill, says David Piscitello, president of consultancy Core Competence.

He offers the scenario of a security information officer who works at a large corporation that spends $25 million per year on security. He has used that budget well, implementing security technologies that have buttoned up the company against any attacker. But without incidents to report — look, here's why we need security — he can't justify his budget to the satisfaction of business executives.

"The poor security administrator has to talk for 30 minutes justifying the expense, knowing full well that no one else in the room has a clue about what he's said," Piscitello says. "And at the end, they say, 'Well that doesn't sound like it's worth $25 million. We're going to cut your budget 30%.' "

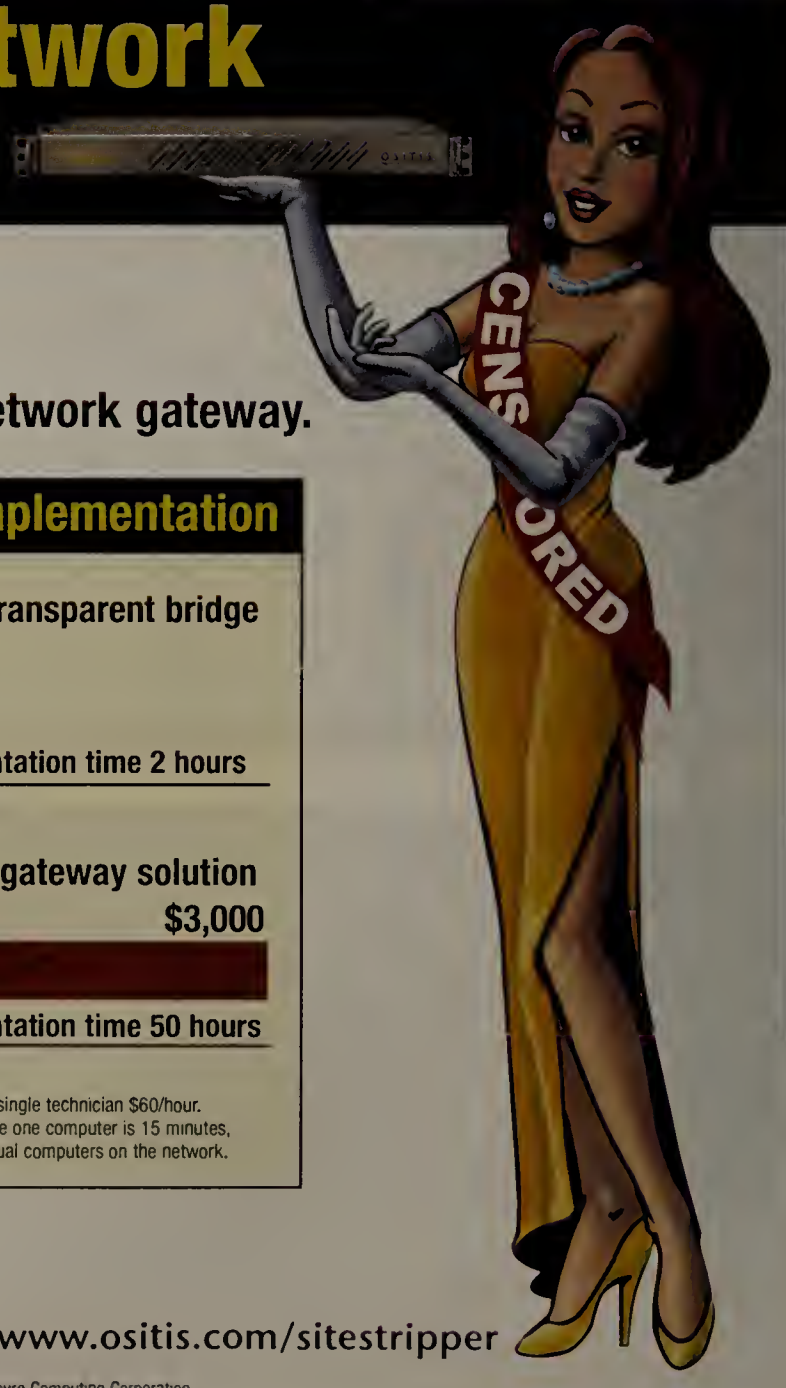
When the company is hacked three months later, it soon becomes clear why, he says. "Unfortunately, the guy they hired to replace the $250,000-a-year security information officer that the board fired didn't understand the system and misconfigured it," he says.

Few organizations truly understand the importance of hiring, training and keeping competent security personnel. "They put guys in a security department who really have no skills," Crutchley says. "If you're thrown into a security environment and just told to get on with it, you're going to play, make mistakes and potentially put your organization at risk while you learn on the job. And that's no way to protect a business."

What this means for intrusion prevention, Hinkel says, is the technology is backed up with highly trained people who can do the assessment, patches and alarm correlation, decipher the logs and actually deter intrusions. "We need good boxes automating what they can," he says, "but it's only with good people using the tools that you get the best outcomes."

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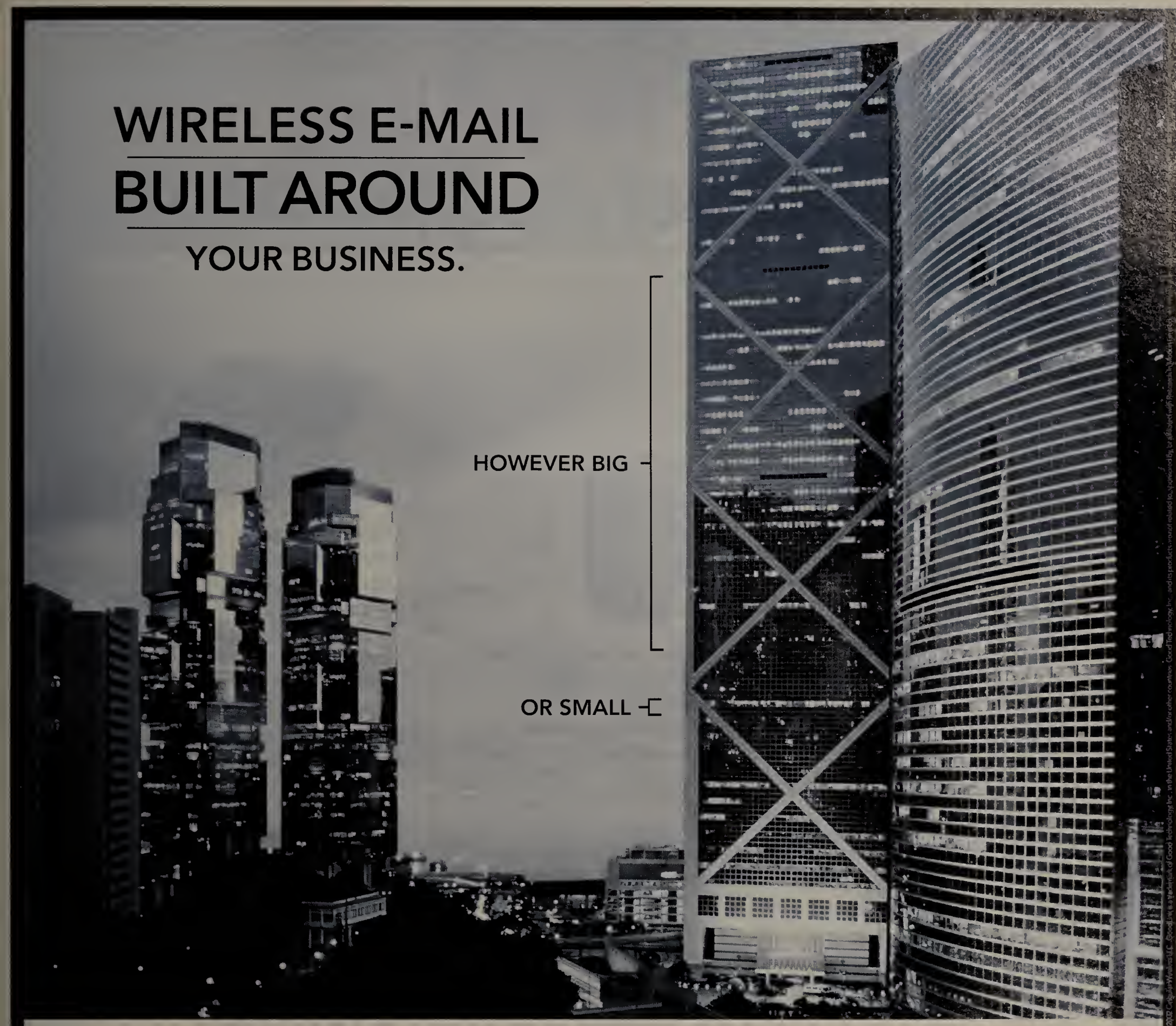
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"Sometimes a valid business transaction may act like an attack ... I definitely would not want my IDS . . . blocking traffic automatically!"

Van Nguyen, director of global security, American Presidential Lines

Intrusion, *continued from page 72*

of global security at American Presidential Lines, an ocean shipping company in Singapore. He speaks from experience.

"In the past, our network-based IDS has flagged our back-up software as a legitimate attack. I definitely would not want my IDS sending TCP resets and blocking traffic automatically!"

But the answer doesn't lie in proper configuration alone, users and vendors say. Rather, before an IDS can work in prevention mode, it has to support a variety of detection techniques, including the traditional signature detection, and it must be fully integrated with a vulnerability-assessment tool.

And the start-ups addressing intrusion prevention are doing just that. Their products employ multiple detection techniques, such as signature, stateful inspection and protocol anomaly. Moreover, their products integrate with firewalls, IDS and vulnerability assessment (see chart, page 72).

In particular, Pescatore points to developments from IntruVert Networks, iPolicy Networks, OneSecure and TippingPoint Technologies.

"These start-ups are charging the hill with pretty good technology approaches," Nguyen says.

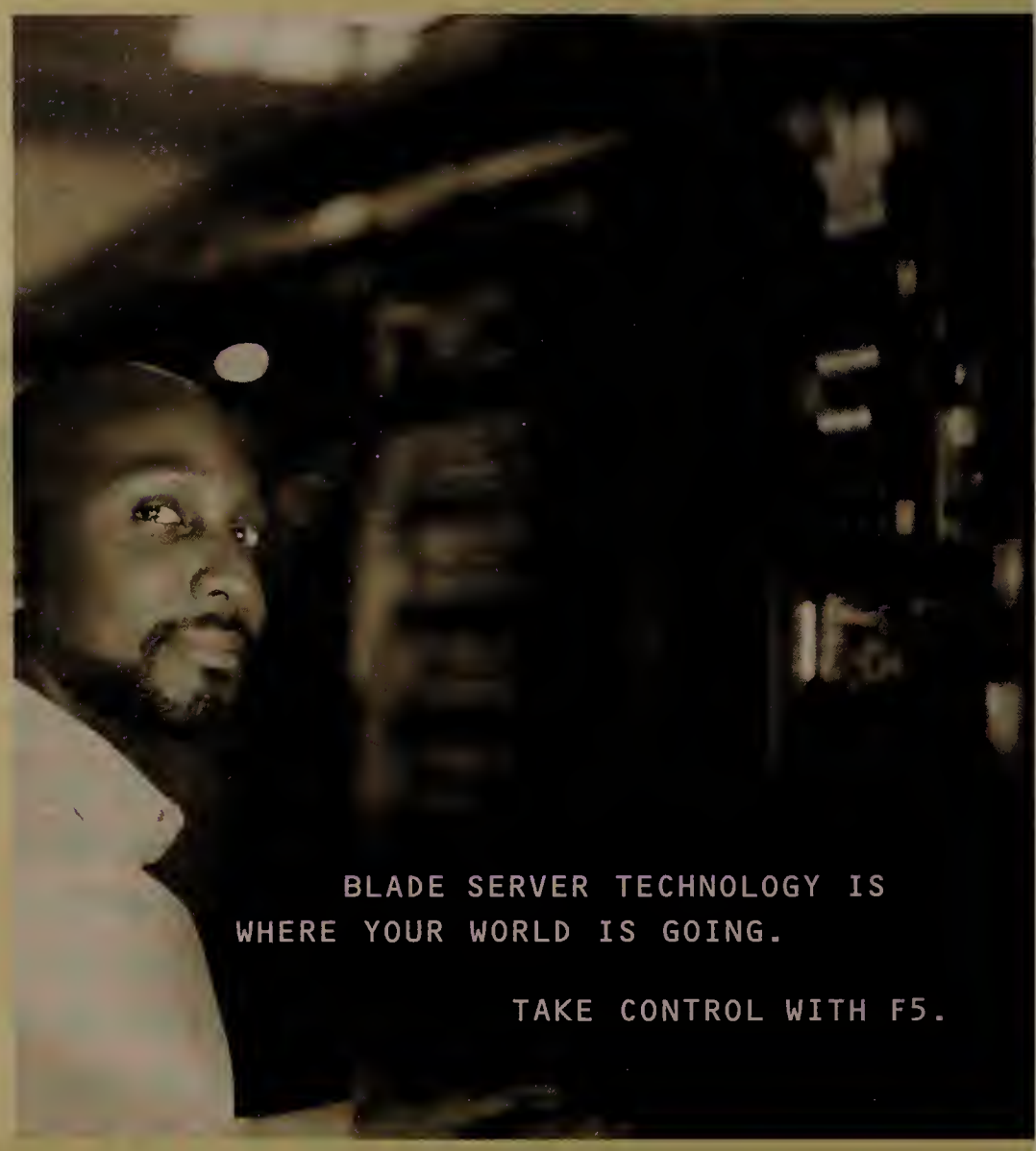
These approaches, the vendors say, let them run inline in the network, blocking malicious traffic in real time. This is a marked change from a traditional IDS, which runs passively, watching the network traffic as it goes by and delivering reports after the fact based on what it sees.

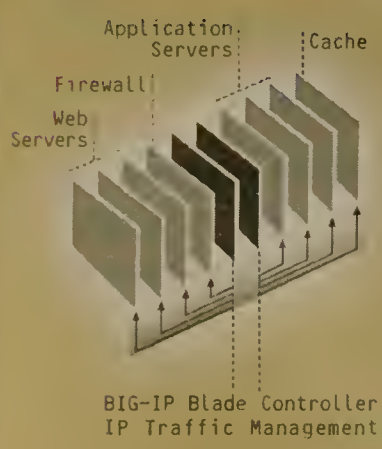
"Inline intrusion detection puts the intrusion-detection system inline like a firewall," says Martin Roesch, CTO at intrusion-prevention firm Sourcefire and co-inventor of the Snort open source IDS. "The IDS makes decisions about whether to pass packets or not, much like a firewall but with the smarts of an IDS. This goes beyond basic blocking because you actually can intervene on a session that's been established, and if you see a buffer overflow, you can stop it from completing. You can actively prevent attacks," he says.

Intrusion prevention is similar, but it also encapsulates firewall, antivirus and vulnerability-assessment capabilities.

*See **Intrusion,** page 82*

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Intrusion, continued from page 80

The problem with inline intrusion prevention is that it tends to become a network bottleneck, in much the same way firewalls can be. All network traffic needs to flow through these devices, and if they don't operate quickly enough, they drop packets.

Speed is a main criterion for intrusion-prevention wares, Pescatore says. "They can't be the bottleneck. They have to work at wire speed," he says.

Again, the start-ups appear to appreciate that. Most say their products work at gigabit speeds and are steadily improving performance.

Is it enough?

So now we have these new devices meant to limit false positives, use a variety of detection techniques, integrate with vulnerability assessment and antivirus tools, and sit inline and automatically block intrusions at wire speed — at prices comparable to IDS. Does such functionality make intrusion prevention a sure thing?

Not likely, users and analysts say.

"You can do behavioral analysis, anomaly detection and all sorts of different ways of picking up traffic on the network, but chances are, there is always going to be something that gets by you. They're not 100% solutions," Roesch says.

"That's one of the risks of falling for pure prevention as a sufficient technique by itself," says Nguyen, whose primary prevention tool is NFR Security's SilentRunner, a network diagnostics and forensics package that provides graphical views of network traffic, culled from IDS, firewalls and other network devices, and makes recommendations about closing vulnerabilities. "While many of the technologies are effective, you are completely vulnerable to the things they don't stop."

> **"You can't just set the IDS and forget it. You have to . . . keep revisiting it as things change on your network."**
>
> Greg Hinkel, technology lead for computer security, Oak Ridge National Laboratories

Greg Hinkel, technology lead for computer security at Oak Ridge National Laboratories (ORNL), a Department of Energy national laboratory in Oak Ridge, Tenn., and longtime intrusion detection and prevention user, agrees. "You can't just set the IDS and forget it. You have to tune it to your environment, and then keep revisiting it as things change on your network. You have to constantly be touching these things," he explains, noting that ORNL uses Snort and ISS's RealSecure IDS, and homegrown prevention tools tailored specifically to its network.

As with any technology, the tool is only as good as the person operating it, Hinkel stresses. "You can't use technology to solve everything," he says. "You have to take people into account. Educate the users, have a real and knowledgeable person studying the traffic, the logs and so on. Know your network. You can't expect some piece of hardware to fix everything for you."

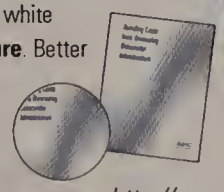
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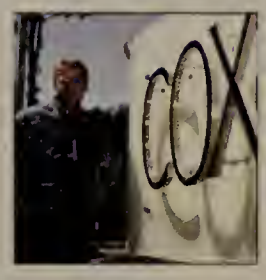
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IN THE Spin Cycle

Take a quick whirl through six emerging technologies working up real buzzes.

By Julie Bort



Identity management

Of course you want to protect your network from hackers, cyberterrorists and other boogeymen. You want to know who is logged on, regardless of location or type of client, and that only those who have a right to use them can access resources. You want identity management. You want it so badly that marketers are busily relabeling an impossibly wide range of offerings — from portal authentication servers to log reporting applications — as "identity management" products.

Yet the core of identity management is tried-and-true password management tools coupled with new automated account management software. This latter "provisioning" software is buzz, too.

Password management is a relatively mature set of technologies, typically for help desks, available from vendors such as Courion, M-Tech Mercury Information Technology, PentaSafe Security Technologies and single-sign on vendors such as Oblix. Provisioning adds a workflow engine, middleware and features for automating user account management. Most password management vendors offer products for some form of provisioning, such as managing IT accounts when hiring, moving or firing employees. Other vendors, such as Business Layers and Waveset Technologies, offer tools for larger-scale provisioning such as granting access to IT resources based on user role. This type of provisioning is doable today and much closer to the identity management ideal, but tends to require much business re-engineering and considerably deep pockets.

Enterprise content delivery

Graft caching and intelligence and you get content-delivery network switches, the root of an enterprise CDN (eCDN). Companies are about to go nuts for eCDN, analysts predict. IDC tags spending at $1.3 billion in 2006 for CDN equipment, most of that for switches, up from less than $400 million in 2001.

An evolution of simple caching, eCDNs let companies intelligently manage what data is cached, and where. For instance, the eCDN could enact a rule to cache in a specific location any data that is requested repeatedly by the same region over a specified time frame. This way, companies can cache not only Web data but also streaming media and, eventually, e-mail and non-IP legacy applications, says Lucinda Borovick, an IDC analyst.

ECDN vendors include Cisco, Digital Pipe, F5 Networks and Volera.

IT portfolio management

If you find the term IT portfolio management confusing, you're not alone.

Some use it in reference to an ever-more-sophisticated breed of asset management and capacity planning products. These tools, from companies such as Opnet Technologies, Clairvoyant and NetScout Systems, are meant to allow accurate forecasts of what equipment you must buy next — often down to the brand name. Other industry observers say IT portfolio management means a comprehensive cost/benefit view of all things IT — hardware, software, services and worker knowledge — past, present and planned.

Additionally, a crop of IT project management tools make up a closely related buzz term: project portfolio management. These tools help users run multiple IT projects while analyzing the bigger picture of overall IT spending and scheduling. This batch includes software from vendors such as Artemis International, ProSight and Pacific Edge.

What all these definitions have in common is accountability. Whether or not you use a trendy term like IT portfolio management for your resource allocation methods, this is the era of spending accountability. And network executives must be equipped to quantify, and defend, resource consumption.

Honeypots for security

If crime fighting runs in your blood, then honeypots could be for you. Honeypots are a form of intrusion detection that tricks hackers much like a law enforcement sting operation draws in wrongdoers. The bad guys think they are cracking your server but the honeypot is actually feeding them false information or acting as a decoy server intended to be compromised. In some cases, honeypots gather information useful for tracking down your attacker.

Researchers tend to use honeynets, an extreme form of honeypot in which an entire network is the lure, to discover new hacker trends.

Honeypots will become a crucial tool for the good guys because they divert all types of attackers and provide an understanding of hackers and their tools, says security expert Marcus Ranum in the foreword of a newly published book on honeypots. You can find honeypots from a variety of vendors, such as Symantec, which recently acquired Recourse Technologies and its ManHunt honeypot, and ForeScout Technologies, with its ActiveScout. Or you can download one of the original honeypots, Fred Cohen's Deception Tool Kit, from www.all.net.

Public wireless nets

When Sprint launched a nationwide, 3G wireless network in August, the buzz over 3G grew to a scream. True, 3G services for now are for consumers, but that might not always be the case. Revenues for North American 3G services are predicted to increase from a projected $2.5 billion in 2004 to almost $6.7 billion in 2006 as businesses and consumers adopt en masse, says the UMTS Forum, an international industry association that promotes a 3G technology called the Universal Mobile Telecommunications System.

Yet, the latest scuttle says that 802.11 public wireless LANs could cut off 3G at the knees. Here's the argument: 802.11 chips will drop in price to a couple of dollars each, making them standard fare on most laptops and many consumer devices. By 2006, more than 5 million people will access the Internet regularly via nearly 42,000 publicly available wireless LANs dotting the U.S., IDC predicts. So, who needs 3G?

Wireless service providers, which are spending billions of dollars to upgrade their networks to 3G, want to squash this line of thinking. In July, a UMTS Forum report concluded that 3G and public-access wireless LANs will complement, not compete. Perhaps, but the decapitation of pay phone revenue by cell phone use teaches that one technology is likely to dominate. The forum's report, not surprisingly, says 3G would dominate, because it can be used while traveling at high speeds, among other reasons.

Either way, you and your road warriors will win, as wireless becomes just another IP fabric to you.

Grid computing

Grid computing, also known as computational grids, is server clustering to the umpteenth power. It taps into unused CPU cycles on widely distributed computers and coordinates those cycles to calculate enormously complex problems. For instance, the United Devices Cancer Research Project uses a computational grid to process molecular research. Anyone can donate CPU cycles to the project by installing freeware onto a computer.

But grids needn't be a hodge-podge of hosts. Some, such as the optical research network TeraGrid, are created among designated computers, similar to how a company might construct one. TeraGrid links computers at the National Center for Supercomputing Applications, Argonne National Laboratory, the University of Illinois at Urbana-Champaign and Northwestern University.

Grid computing, like the Internet, might one day be part of the average company, but not before software development toolkits, management tools and fault-tolerance methods are mature enough. Efforts abound on this, such as the Globus Project's open source Globus Toolkit for building grids, and the Grid Application Development Software Project's application development environment.

Commercial vendors include Avaki; Entropia; and IBM, Hewlett-Packard and Platform Computing, all of which sell and support the Globus Toolkit. ■



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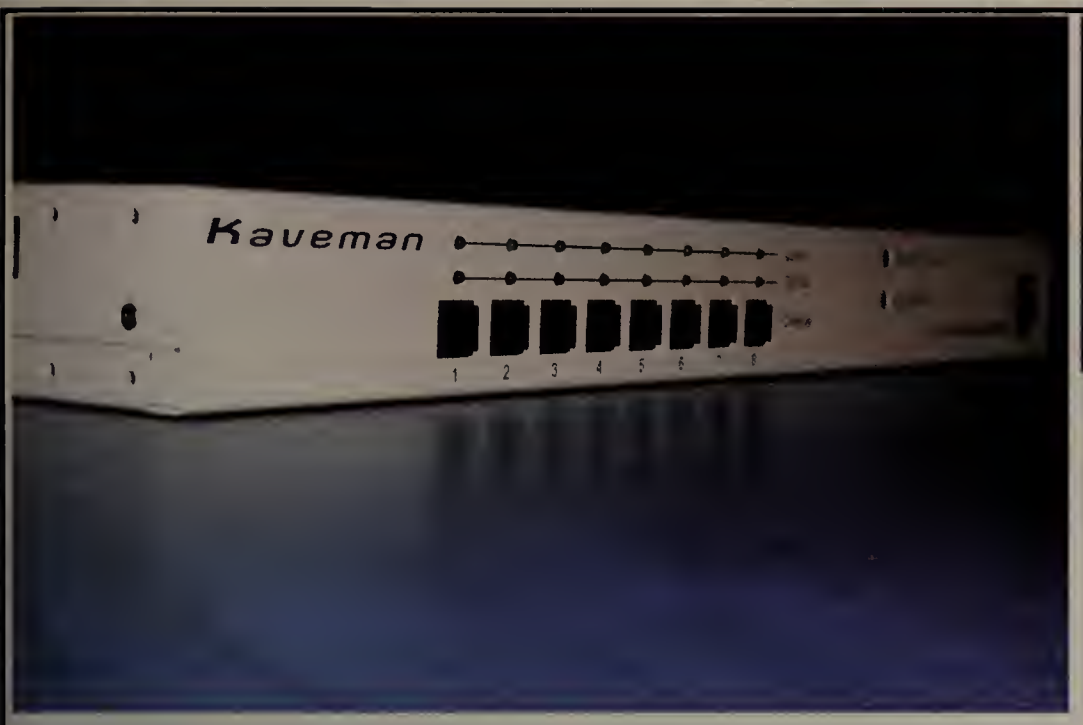
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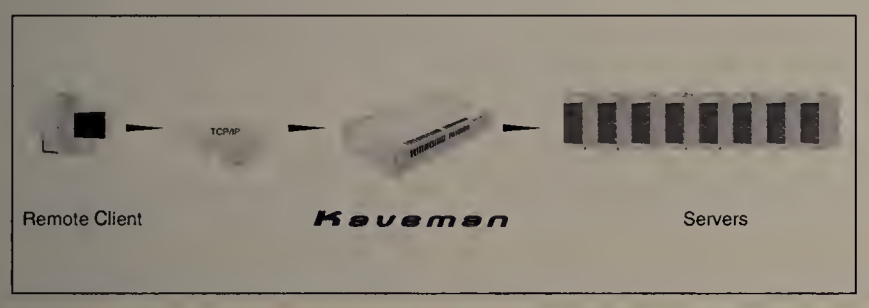






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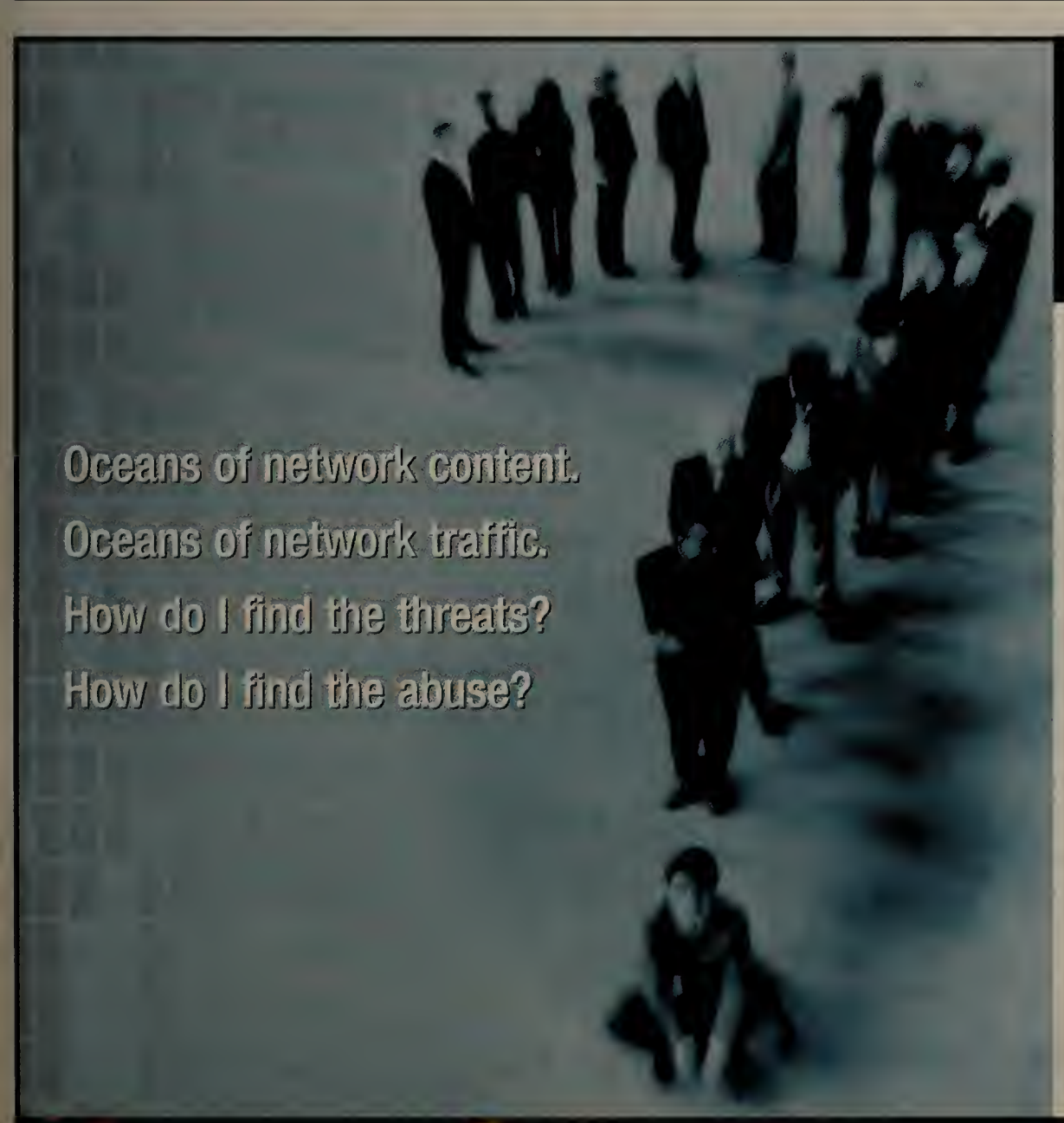
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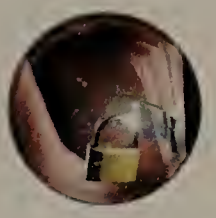


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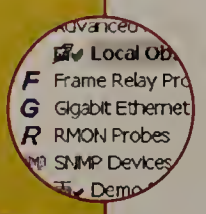
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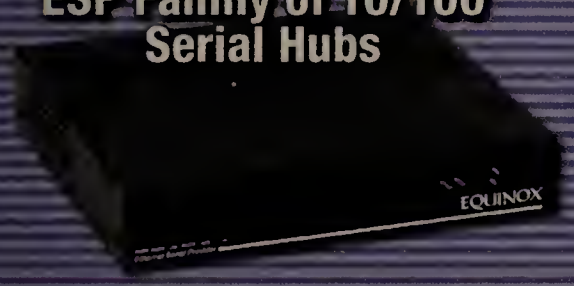
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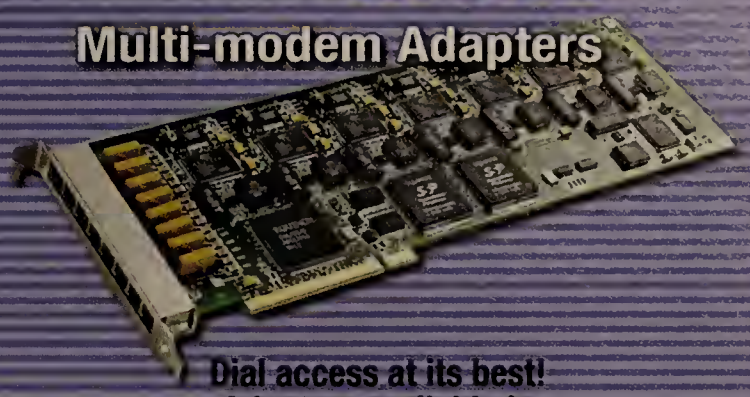
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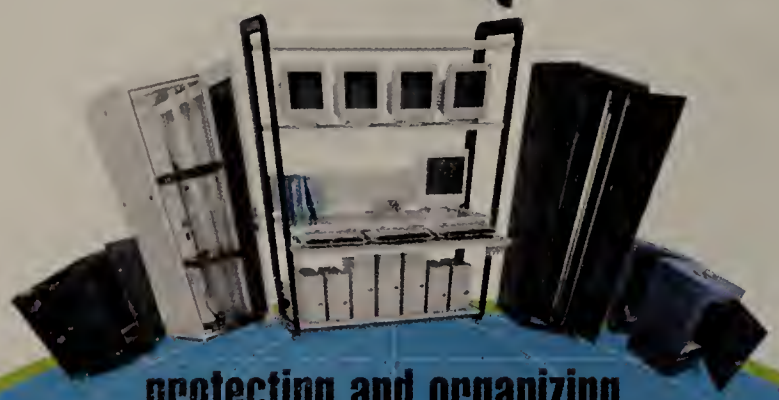
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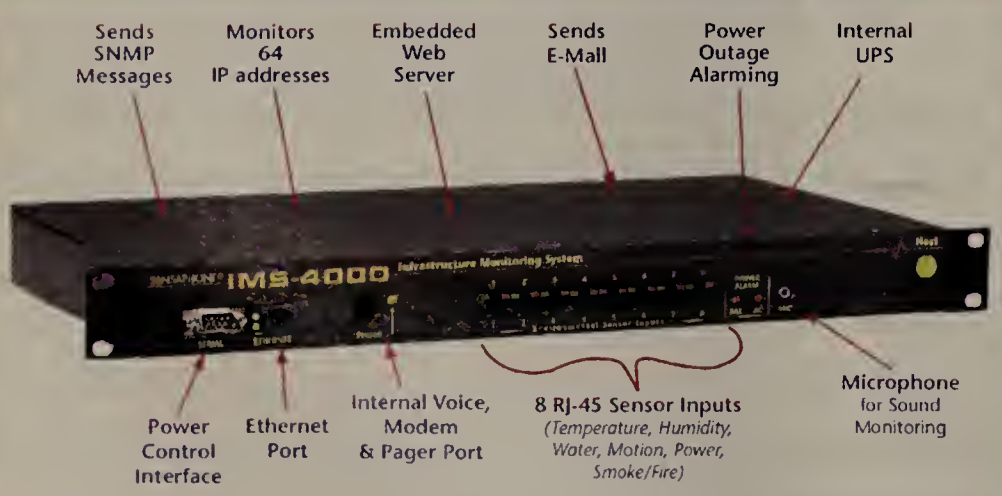
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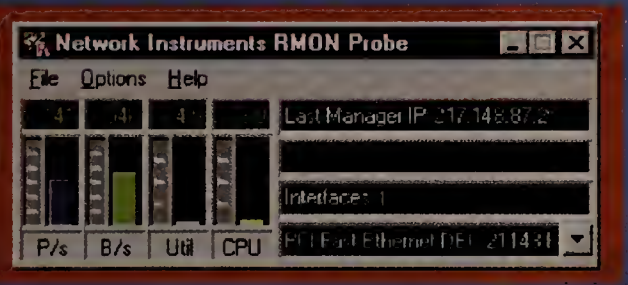
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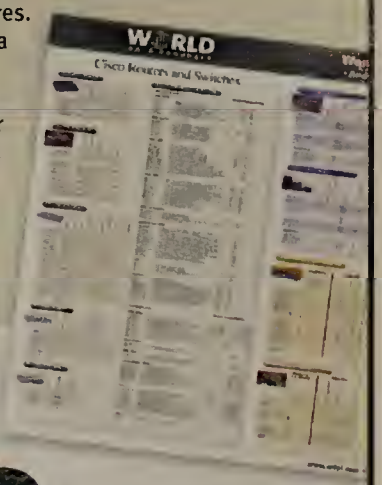
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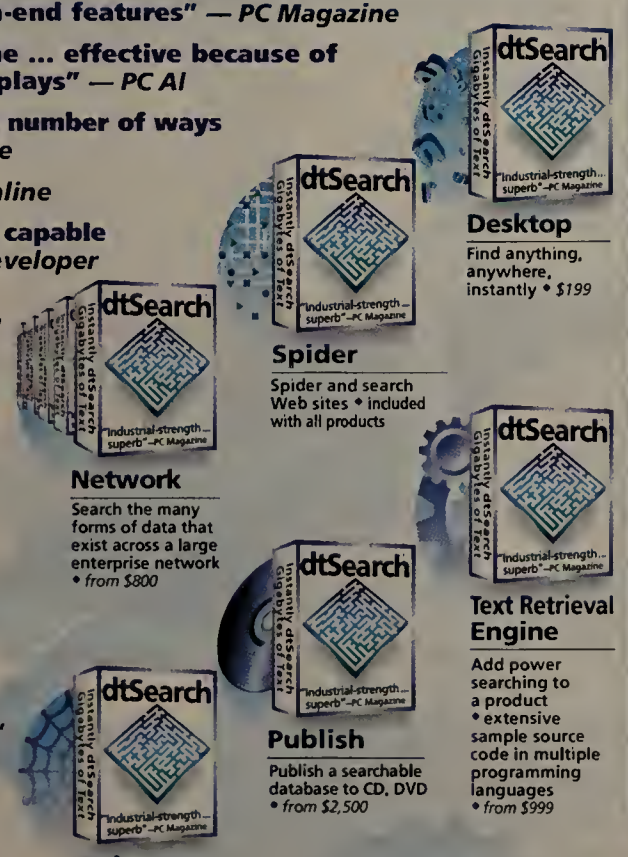
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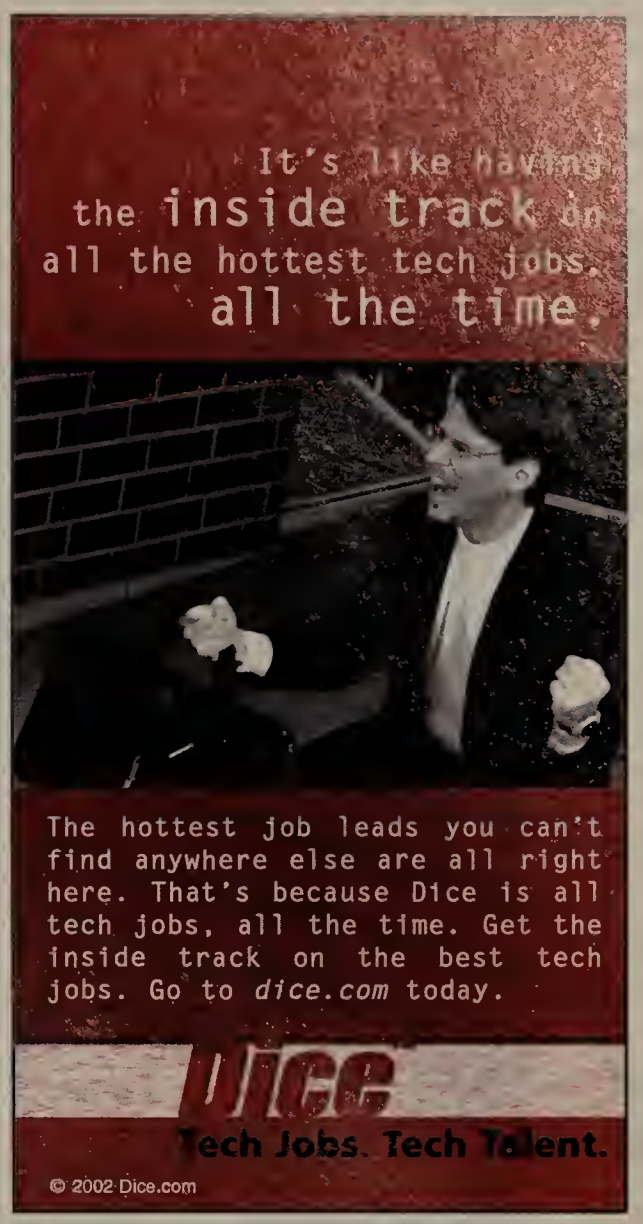
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BackSpin Mark Gibbs



Cranky and gloomy

"I think you ought to know I'm feeling very depressed."

— MARVIN THE PARANOID ANDROID FROM *THE HITCHHIKER'S GUIDE TO THE GALAXY* BY THE LATE DOUGLAS ADAMS

I have a cold. Nothing big, just a dash of good ol' rhinovirus (part of the Picornaviridae family ... pico meaning small and rna signifying that these are single-stranded positive sense rna viruses — see www.nwfusion.com, DocFinder: 2343). And one thing that colds tend to do to me is interrupt my sleeping pattern. I got about three hours last night — which tends to make me cranky and gloomy.

Actually, it isn't just the cold that's making me gloomy, it also is a consequence of reading the draft report "The National Strategy to Secure Cyberspace" issued last Wednesday by President Bush's Critical Infrastructure Protection Board. You can find the report at DocFinder: 2344.

<digression>Can anyone tell me why the report is a PDF file? Why was it laid out in landscape format so that unless you have one of those rotating monitors you pretty much have to print it out to read it? Why not publish in HTML? Why not make it a richly linked, vibrant evolving document? Why keep thinking in terms of paper? And of course because of paper thinking there's at least one URL (see page two of the report) that is wrong: They have a hyphen in www.securecyberspace.gov.</digression>

The report is a fine example of some very smart people tackling an enormously complex problem in a hugely political context.

The recommendations of the report are predictable, ponderous and mired in bureaucratic thinking. For example, from page three under Case for Action — Key Themes: "The nation's economy is increasingly dependent on cyberspace; this has introduced unknown interdependencies and single points of failure." The report has no comment on how the problems of unknown interdependencies and single points of failure should be addressed.

Task forces for this, committees for that, but nothing concrete. The result is more soapboxing than action. And we can draw several conclusions from this.

First, without laws that impose legal obligations on network and computer owners, all that the "plan" can offer are best practices.

Second, when it comes to computers and networking, best practices quickly become obsolete, and are only very generally applicable.

Third, whether a best practice actually can be followed depends on the situation.

Fourth, from conclusions two and three, we can deduce that any person or organization that fails to implement a best practice can usually claim extenuating circumstances.

What we have at work here are a number of competing factors that make for an intractable problem: We can't legislate because network security is too complex to frame meaningful laws about and, even if we could, it is too politically charged to do so (the gods be praised).

And we can't leave the problem to be solved through corporate belief in community responsibility or enlightened self-interest because we don't believe such things generally exist in corporate circles.

And just consider that, as all this infrastructure protection talk is going on, we still have that lunatic, California Congressman Howard Berman, who I wrote about some weeks ago (DocFinder: 2345) sponsoring legislation so that big business (for example, the Big 5 record companies) can go and hack suspected copyright pirates with impunity!

The scale of the problem is way beyond our ability to understand it (I banged on about complexity a couple of weeks ago — see DocFinder: 2346).

The government needs to get its own house in order and leave the private sector to do what it does best — look out for its own interests.

Of course, I do have a cold so my gloom might be unwarranted. Cheer me up at backspin@gibbs.com.



'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Whois may become a Whowas

The Whois directory might be riddled with falsified contact information provided by irresponsible domain name owners who prefer to remain unreachable, but at least the listing is still a useful tool for easily and quickly making contact with the vast majority of Web site operators.

That might change soon, and not for the better.

Upstart domain registrar Go Daddy Software last week announced the launch of a sister company called Domains by Proxy that will offer Web site operators who crave anonymity an alternative to fictionalizing their Whois information. Go Daddy President Bob Parsons says he believes that 10% of his company's 1 million-plus domain name registrants eventually will choose the privacy service and that such services will quickly become commonplace across the industry.

Unfortunately, he might be right, especially because the organization charged with policing Whois compliance — the Internet Corporation for Assigned Names and Numbers (ICANN) — apparently sees no problem with the directory evolving from a relatively reliable source of ready contact information into a morass of privacy shields. An ICANN spokeswoman last week said the organization sees no problem with Domains by Proxy at first blush, but will be examining the details more closely.

Here's how Domains by Proxy works:

A customer wishing to register a domain name without making public his personal contact information — or lying about same — pays Domains by Proxy a $6 yearly fee over and above the $8.95 that Go Daddy normally charges to register a name.

Domains by Proxy becomes the legal owner of the customer's domain name and provides its own contact information to Whois, thus shielding the customer from having to do so. Domains by Proxy then conveys to the customer all the rights associated with ownership, including the right to sell, transfer, renew or cancel the name.

The service includes e-mail notification options that let a Domains by Proxy customer receive messages from outsiders who want to contact the actual site operator. However, one of the options is to receive no such e-mail.

Parsons says the service will protect his customers and their families from stalkers, child molesters, identity thieves and spammers. He insists his company will bend over backward to assist law enforcement should anyone be tempted to use this privacy protection for nefarious purposes — and they will certainly be tempted. He also promises that if spammers try to hide behind the service, "We'll be on them like ticks on a dog."

Let's presume he's sincere. This type of service still spells big trouble for the usefulness of Whois. Instead of quickly finding contact information for a domain name owner with whom you have an issue and contacting that person directly, you'll be forced to jump through hoops with no promise of actually finding the person.

In general, it's tough to argue against privacy protection. (The $2 and change Verizon charges me every month for the privilege of keeping my telephone number unlisted might be the best money I spend.)

However, there are — or at least should be — obligations associated with staking out a little slice of the Internet for yourself, and the first one ought to be making yourself known and readily available for legitimate inquiries about your site. That's not asking too much.

As for ICANN, its apparent acceptance of these proxy services begs the question of why the organization recently came down so forcefully on VeriSign for its alleged shoddiness in maintaining its Whois records.

There might be a difference between fictitious contact information and the proxies, but that difference will seem insignificant if large swaths of Whois become populated by a handful of phone numbers from a handful of proxy service providers.

Have a comment? There's nothing fictitious about this address: buzz@nww.com.

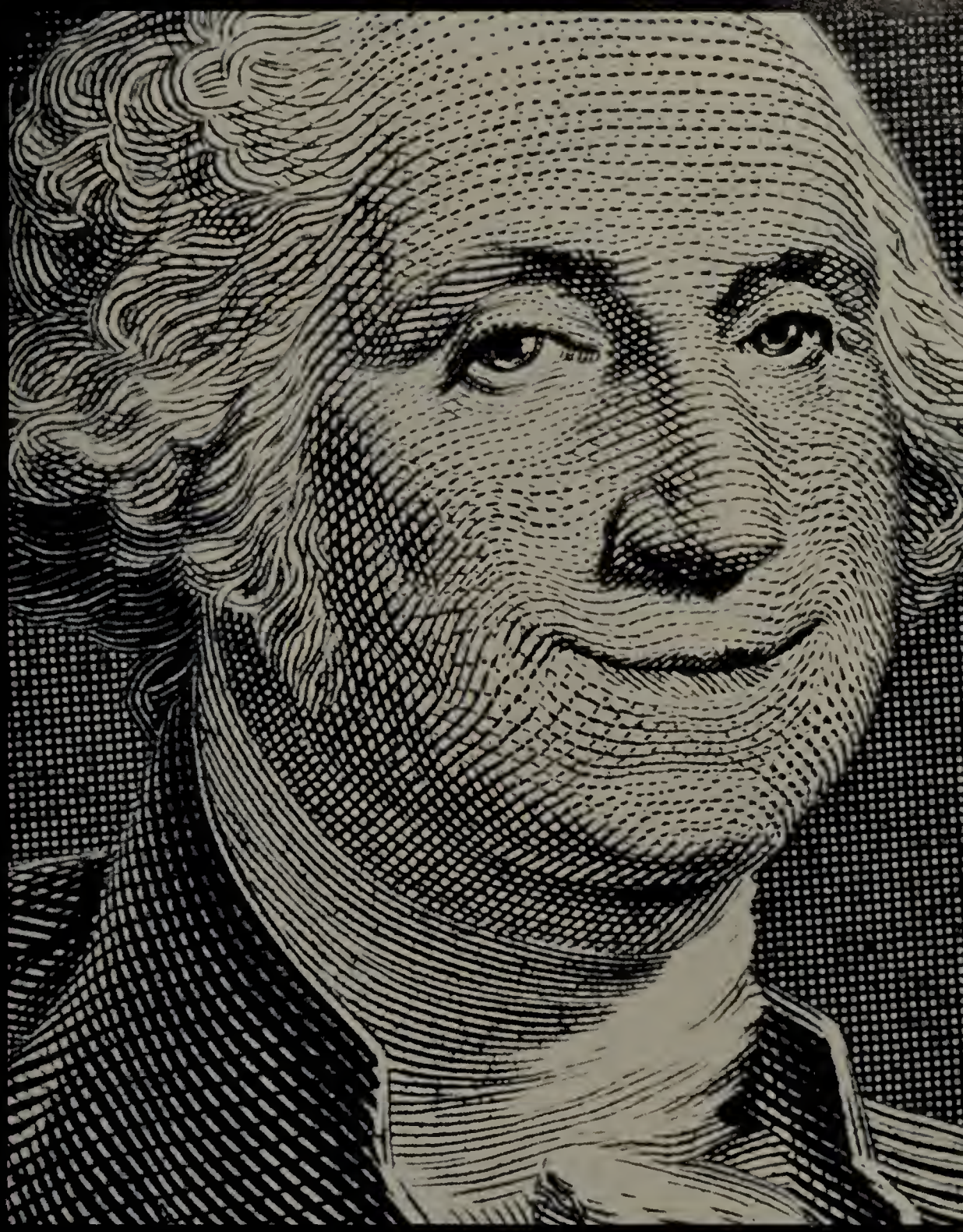
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